UNIVERSITY
OF MICHIGAN
JUN 1 2 1951
ENGINEERING
LIBRARY

JUNE, 1951

American Engineer

IN THIS ISSUE . . .

THE ENGINEER, THE MACHINE AGE, AND THE WORLD OF TOMORROW

UNIVERSITY OF MICH.
GENERAL LIBRARY
ANN ARBOR, MICH.

PHILIP SPORN, P. E.
Professional Engineers and the Path of True Progress

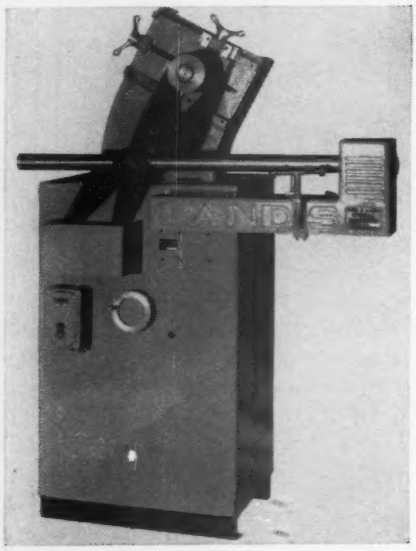
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
FOUNDED 1934

Attend The Annual Meeting — Minneapolis, June 14-16

What's New

As a service to our readers, this column will describe briefly new product developments of general interest to professional engineers. When writing manufacturers, we will appreciate your mentioning the American Engineer.

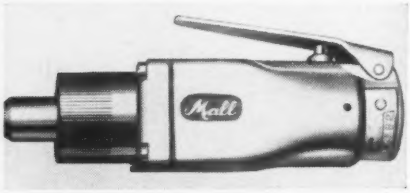
● The availability of a new Spiral Tube Winder is announced by Ellis M. Landis, Philadelphia, Pennsylvania. This Winder is designed to make spiral paper tubes up to 3½″ outside diameter.



Winding belt speed range is from 40 to 200 feet per minute. The machine is completely self-contained with built-in variable speed transmission unit and a 2 H.P. motor. Sealed anti-friction bearings are utilized to the fullest extent. Bevel gearing, which is common to conventional winders, is completely eliminated. The base is of welded steel construction, and the mandrel bracket and idler pulley brackets are made of high strength cast iron. All shafts are alloy steel, and all controls and adjustments are accessible at the front of the machine. The Winder is 45″ long and 65″ high; net weight with 2″ diameter mandrel is 750 pounds.

For further details write Ellis M. Landis, 226 S. 52nd Street, Philadelphia 39, Pa.

● A completely new pneumatic die grinder, designed to solve many precision grinding problems on small dies, castings and hard-to-get-at spots, has been developed by the Mall Tool Company. The entire tool is 4⅝ inches long, 1¼ inches wide and weighs 12 ounces, making it the smallest and lightest rotary vane air grinder on the market. A choice of lever or button type throttles with a special collet guard allows the operator to hold the tool close to the work, permitting fingertip operation with better balance in the tightest working areas. An arbor runout within .0015 inch allows extremely accurate work where pinpoint grinding is required. Eight sizes of Erickson precision collets are available to give a complete range of shanks from 1/64 inch to ¼ inch . . . these collets have extra gripping power for greater operating safety at high speeds.



The rotary vane type air motor is cool running and develops 26,000 rpm. Speeds can be stabilized by a built-in speed regulator within a limited range to fit each application. Air exhaust is directed away from the operator, where it cleans and cools the work. Motor is equipped with a new noise silencer that eliminates annoying high pitch tones. Housing is made of polished aluminum alloy.

For further information write Mall Tool Company, 7725 South Chicago Avenue, Chicago 19, Illinois.

● A revolutionary small inexpensive metal fastening device has been put on the market by the American Shower Door Company of Los Angeles. The device, known as the "Thumweld" is designed primarily to be used as a permanent fastener where rapid assembly is important or to replace screws or bolts securing parts that are occasionally removed for service or inspection.

The "Thumweld" fastener applies from one side and requires only the drilling of a 3/16″ hole. Thumb pressure alone is sufficient to lock it in place. Once locked the fastener grips as securely as a metal screw or bolt and will not jar loose. To release, a quick pry with a screw driver or thumb nail is sufficient. "Thumweld" fasteners will be available for hole sizes ranging from ⅛″ to ½″ and for metal thicknesses up to ½″. For further information write the American Shower Door Company, 1028 La Brea, Los Angeles, California.

● A new portable light for Civilian Defense emergencies which provides 80 hours of continuous light on each battery charge has been announced by Carpenter Manufacturing Company of Somerville, Massachusetts. Designed for work in defense plants and for use in emergencies by police, fire, first-aid, rescue, demolition squads, etc., this light (Type CDU) is powered by a heavy duty rechargeable long life battery.

For further details write the Carpenter Manufacturing Company, Somerville, Massachusetts.

● Lyon Metal Products, Inc., announces the Lyon Tool Stand which gives sturdy performance around production machines, mountings for small tools and parts containers for assembly lines. The Tool Stand is available in either the stationary or portable models.

Intermediate trays are all interchangeable and punched for attachment of drawers. The drawer has a padlock attachment and sliding tool tray and operates on ball bearing rollers.

The Steel Tool Stand is manufactured by Lyons Metal Products, Incorporated, with general offices in Aurora, Illinois. Lyon Steel Tool Stands are available through local dealers located throughout the United States.

American Engineer

JUNE, 1951

► **COVER STORY. The Engineer, The Machine Age and the World of Tomorrow** 6
By Philip Sporn, P. E., President, American Gas and Electric Company. A public utilities executive looks at industrial and world problems.

The O. D. M. And The Job Ahead 9
By Col. Alfred E. Howse, economic advisor to Charles E. Wilson, ODM. Plans and purposes of the Office of Defense Mobilization.

War With Russia? Deferment?—P. E.s' Thinking On Current Questions 12
By Barbara Haislip, Staff Writer. Last of Two Installments on NSPE Quiz.

Point Four's Bennett Heads Speakers For Minneapolis 15

From College to Industry 23
Young Engineers Voice Their Thoughts.

Regular Features

Editorials 4
We'd Like To Have You Meet 5
Accent On Activity 16
Book Looks 17
What They're Saying 18
Letters To The Editor 20
Around The Nation With Our Members 24

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS FOUNDED 1934

Editor
KENNETH E. TROMBLEY

Business Manager
ARTHUR F. BECK

Publications Committee, NSPE
GEORGE J. NICASTRO
Chairman

"Many a battle has been lost because men lacked confidence in the outcome. That has not been characteristic of the Engineer. He is accustomed to face hard tasks demanding his best. The rebuilding and the restoring of an ordered world present such a problem. It seems to me there is a continuing place of dignity for the Engineer of tomorrow."

—THE RIGHT REVEREND FRANK W. STERRETT
Episcopal Bishop of Bethlehem Diocese

CCA
Member, Controlled Circulation Audit

Advertising Representative:
Warren T. Mayers Company,
130 E. 61st Street,
New York, N. Y.

The American Engineer is published monthly by the National Society of Professional Engineers, 1121 15th St., N. W., Washington 5, D. C. Entered as Second Class Matter Feb. 8, 1948, at the Post Office, Washington, D. C., under act of March 3, 1879. Copyright, 1950, by the National Society of Professional Engineers. Not responsible for opinions expressed in signed articles. Subscription Rates: $2 per year in advance to members of NSPE and its Affiliated Societies; $3 per year in advance to non-members in U. S. A. and its possessions, Canada, and Mexico. Foreign, $4 per year. Single copy, 35c.

EDITORIALS

The Annual Meeting . . .

The National Society will hold its 1951 Annual Meeting at the Hotel Nicollet in Minneapolis, Minnesota, June 14-16.

This is an important meeting for the Society member. It is a meeting where Society representatives from all levels of the organization gather to review the year's work and to chart the course for the coming months. It is a meeting that offers a multitude of interesting subjects for the professional engineer. On an agenda filled with subjects of great import, will be discussions on such vital topics as the new Four Point Public Relations activity, the broad legislative program at the national and state level, and the complex problem of unifying the profession. It is a meeting that offers an excellent opportunity to become better acquainted with professional brothers from across the nation. Every NSPE member should make an effort to attend!

Society business, of course, represents only one aspect of the conference. This year such nationally important men as Dr. Henry G. Bennett, director of the much-discussed Point Four program and Mr. Walter W. Watts, Assistant Administrator of the Defense Production Administration, will address the convention. Another highlight will be a panel discussion of the renowned St. Lawrence Seaway project. Already engaged to participate in this debate are Julius H. Barnes, a corporation official who is now Chairman of the Board of the Barnes-Duluth Shipbuilding Company, a past president of the Great Lakes-St. Lawrence Association, and long interested in the project. Also taking the affirmative side of the issue will be Mr. H. Chapman Rose, chief counsel of the M. A. Hanna Company. Presenting their views against the development will be Mr. Walter J. Kelly, Vice President-Traffic, Association of American Railroads, and a local speaker to be announced.

Speeches by Bennett and Watts and the panel discussion represent only three items on an extensive program. Pleasure will also command attention, of course, and no area in the United States offers more opportunity for relaxation and sheer enjoyment than the beautiful Minnesota countryside.

Plan now to attend one, two or all three days of the Minnesota meeting. If possible, bring your family and enjoy a few days at one of the State's many lakes. You'll learn more about your profession and your Society by attending the Annual Meeting in June. Give it your full consideration now.

Engineers at Top Level . . .

Last month *Time* magazine called attention to the appointment of Mr. Ernest W. Reid as president of Corn Products Refining and Mr. Paul Endacott, as president of Phillips Petroleum. Both men are engineers and both men started at the bottom of the professional ladder.

Engineer Reid, who won his Master's and Ph.D. degrees in Chemical Engineering at the University of Pittsburgh, was for many years a research engineer and had important roles in the development of such materials as the famous plastic, Vinylite. In 1943 he joined Corn Products as a vice president, and will now direct the destiny of that firm.

Engineer Endacott is a forty-nine year old ex-All America basketball player who started out in the oil fields. He caught top management's eye by persuading Chrysler Corporation to be the first to convert a big plant's heating system to liquefied petroleum gases. He rose to the head of sales research at Phillips' in 1934, and was made a vice-president in 1943.

The profession extends its congratulations to these industrial leaders, and is pleased to note that still two more engineers have used their training and background to catapult them into leading management jobs.

Mortar-board Time . . .

In this month of graduations at high school and college levels, it is an appropriate time for the professional man to reflect upon that most important human activity—education.

Frank W. Abrams, chairman of the board, Standard Oil Company of New Jersey, recently called this country's investment in its schools the "greatest investment ever made." We believe he is right.

"Could we have a vastly productive nation without a trained and educated population?" Mr. Abrams asked. "Could we have a great political democracy without an educated population—unless generation after generation, we had given our children understanding, perspective, and awareness of the past and present to help him estimate the future? I don't see how."

"American inventiveness, and ability to create and operate great organizations in a free economy, have been the marvel of the world in the last one hundred years. But our inventiveness has been increasingly the result of a population happily enriched by universal education."

"Could we have modern business, skillful management, great markets, the kind of industry we have in this country, if we had not invested heavily in education down the years? How could we? I don't see how."

We think Mr. Abrams has placed his finger directly on the end result of complete and effective education, but we must not stop here. Although our many excellent engineering schools have done a magnificent job over the years, that should not prevent us from being ever aware of the necessity for improvement. Almost any engineer, when reviewing his college days, will mention deficiencies in his education. A timely case in point are the results of a survey recently taken by this magazine among Society members, and reported upon in the May issue and again in this issue. It was found that eighty-six per cent of those questioned mentioned certain failings in their school curriculums.

The profession, in order to produce better engineers with a greater capacity to enjoy life and to serve the nation, should be always alert to weeding out these deficiencies, and replacing them with more modern, more effective educational methods. In this way the individual, the school, the profession, and the nation progresses.

We'd Like to Have You Meet . . .

John C. Riedel, P.E.

Member, Kings County Chapter, NYSSPE . . . Past President of NSPE . . . prominent civic engineer . . . University lecturer . . . and boyhood sea-fever victim . . .

GENIALITY, kindliness, competency and the respect and love of his associates might well serve as a thumbnail sketch of the man we hail this issue—John C. Riedel, P.E., Chief Engineer of the Board of Estimate of the City of New York, and a past president of the NSPE. A native of New York City from birth, he was undecided whether to follow the sea or go into civil engineering. He soon discovered he was too young to go to sea, however, and became settled on engineering. Shortly afterward he entered the night course at the Cooper Union Engineering School, meanwhile working in the day with a business concern and also undertaking other work related to contracting and engineering.

He received his B.S. from Cooper Union in 1898 and his degree in Civil Engineering in 1904. In 1901, he was appointed to the Bureau of Sewers in the borough of Brooklyn, where he remained for 34 years, filling many positions. In 1899, also, he served on various committees working to handle wastes which were then polluting the waters of the Harbor of New York. During this time, also, he was appointed to the teaching staff of Cooper Union, as a lecturer in the Principles of Mechanics and continued as such until 1935. For the next ten years, Riedel lectured on Engineering Economics at the Polytechnic Institute of Brooklyn.

In 1934 he was appointed Deputy Chief Engineer of the present Board of Estimate of the City of New York. Five years later he became Chief Engineer of the Board. This position carried with it membership in the City Planning Commission for the city, which is the body that investigates and reports upon the Capital Budget, map changes, and all improvements carried out by the City. In addition, Riedel is official advisor to the Mayor and the Board, concerning the Board's engineering matters.

In 1949-50 he was Chairman of the New York City Traffic Commission, a group instituted to deal with the tremendous problem of traffic congestion in the area. Moreover, he served as a member of the committee dealing with the development of the Idlewild Airport from its inception until it was turned over to the Port of New York Authority.

Riedel is also a member of the engineering committee dealing with the selection, development and improvement of the site for the United Nations building at East 42nd Street and 1st Avenue in New York, and has served on a committee investigating the condition of piers in New York to meet the shipping industry's requirements. In addition, he is presently a member of the Slum Clearance Committee seeking to rehabilitate these areas for rehousing.

Riedel feels that the engineer can be of greatest service to his community and nation by "going outside the beaten tracks of his profession and entering into the interests of his community." He adds that the engineer should have "interests far beyond those which are normally associated with the profession."

Among the honors which Riedel has received are a Women's City Club Award for important service to New York City in 1941, the Townsend Harris Medal by C. C. N. Y. in 1946, and the Cooper Union Medal in 1950 for outstanding service to New York City and Cooper Union. He was also elected a Membre d'Honneur of the Societe des Ingenieurs Professionels of the Republic of France. He was recently honored by the City of New York for 50 years of service to the metropolis.

Here, then, is a truly "civic-minded" engineer, one who devotes his working and leisure hours to the betterment of his community, and we are proud to present John C. Riedel, P. E.

The Engineer, The Machine Age, and the World of Tomorrow

By Philip Sporn, P.E.,

President, American Gas and Electric Company
Member, NYSSPE

It is commonly accepted that the industrial revolution was initiated in England and that it began roughly with the development of Newcomen's engine of 1705 and more definitely with the improvements made by Watt about 1774. At first this made it possible to do away with human labor for such backbreaking tasks as pumping and hauling. Then came the mechanization of scores of industrial activities: spinning, weaving, fabricating, and many others. And, because the power for these industries had to be developed in large units, the development of the engine eventually led to centralized industrial operations and to the subdivision of these operations, to large centers of activity and to concentration of population at these centers, with some good and many evil consequences.

But no such recognition has yet been given to the new industrial revolution which was made in the United States of America. This revolution is characterized by machine production, intense technological development, intense specialization, and a much higher rate of production per unit of human effort. That is to say, a great increase in productivity. It has been accompanied by and has enormously stimulated the spreading out of industry beyond the large centers. The development of electric power and its universal availability throughout the United States has been an important factor in this revolution. And an even more important factor has been the relatively negligible cost of the mechanical energy that electric power has placed at the beck and call of every worker in industry to lift and haul, cut and chip, hammer and weld, spin and weave, transform and refine, and to carry out the myriad operations in producing the profusion of goods and services available today.

As a direct consequence of this new industrial revolution, we have a standard of welfare unequaled in history.

Let us look at what has happened here in the United States over the past twenty-five years. In a small table I have compressed into four groups, A to D, a number of indicators of the change in the standard of living during this period. In Group A I have placed two fundamentals —life span and health care. Group B, covering the next four items, shows the data on national income, wages earned, hours worked and the consumers' price index. Group C includes three typical items commonly thought to represent amenities of living — passenger car registrations, telephones and radio sets in use. And finally, in Group D I have given data on two of the fundamental factors upon which the others, more immediately representative of the standard of living, are dependent: electric power production and steel production.

Some Indicators of the Change in Standard of Living in the United States, 1925-1949

Group	1925	1949	% Change
A—Average Male Life Expectancy at Birth in Year Indicated	57.8 Yrs.	65.4 Yrs.	+ 13.1%
Hospital Beds per 1,000 Population	6.9	9.9 ('47)	+ 43.5%
B—National Income (Billions)	76.0	221.5	+ 192.0%
Average Weekly Wages, Manufacturing Production Workers	$24.37	$54.94	+ 125.0%

Can we find peace of mind by declaring a moratorium on technological development?

Average Weekly Hours, Manufacturing Production Workers	44.5	39.2	— 11.9%
Consumers Price Index (1935-1939=100)	125.4	169.1	+ 34.9%
C—Passenger Car Registrations	17,439,701	35,904,770	+ 106.0%
No. of Telephones (Total U.S.)	16,935,918	40,709,398	+ 140.0%
No. of Completed Calls Per Capita	194.9	355.4	+ 82.5%
No. of Radio Sets in Use in U.S.	4,000,000	81,000,000	+1,950. %
D—Electric Power Production, Total—Billions of Kwhrs.	84.7	344.5	+ 307.0%
Electric Power Production, Total—Kwhrs. Per Capita	743	2,310	+ 211.0%
Steel Production — Short Tons	45,393,524	77,978,176	+ 71.8%
Steel Production — Tons Per Capita	.391	.521	+ 33.3%

These indicators reflect a most remarkable achievement in the history of the advancement of human welfare. Who can fail to be impressed by the fact that in the quarter century 1925-1949 average life expectancy increased 13% and average weekly wages went up 125%, while weekly hours went down 12%? Or by the striking increase of 211% and 33% in per capita production of electric energy and steel—both of basic importance?

And yet, remarkable as this accomplishment is, there

certainly can be no question that all is not well with us as individuals or as a nation, nor with the world as a whole. Among individuals, even in this country, there is no general happiness; in the nation there is no pervading satisfying and strength-giving pride of achievement with confident hope for the future; and abroad there is no peace, in many quarters almost no hope. Some would go so far as to say that no hope is being held out for the Western system of civilization—for all of Western man.

How are we to work our way out of the deep morass we seem to have gotten into? How are we to bring under control the forces we have let loose? If it is a fact that our difficulties lie in the failure of our economic, social and moral ideas to keep pace with the growth of technology, can we find our way back by declaring a moratorium on scientific and technological research and development? That has been suggested. Perhaps, it has been said, we can retrace our steps and set up islands of primitive simplicity and self-sufficiency. Is that the answer? Or is the answer an escape into other worldliness and the pursuit of a course that would through a religious revivalism lead to the replacement of our present civilization by a "World-wide and enduring reign of the Church Militant on Earth"? That has been proposed by Toynbee.

I must admit that I cannot see any salvation in a return to ancient ways. It seems to me that we cannot go back. If one examines figures of energy production for the civilized countries of the world, one finds startling discrepancies in individual use. Whereas, for example, the kilowatt-hours produced per capita of population is around 2,500 in the United States, it is a pitiable 2 in Pakistan, 4 in China, and only 14 in India.

What does this mean? Just this: On the average each human being in a country as technologically advanced as the United States has at his call 2,500 kilowatt hours per year. In the less technologically developed countries the corresponding figure is not 1/20th of that value in some of the better cases, and as little as 1/100th in the worst. As a consequence, in those countries the human being is reduced to the role of an energy producer. But how can you reconcile man's humanity or his having been created in the image of God with the idea of valuing him and using him primarily as an energy producer? Keep in mind that the average healthy human being so used can at best produce 1 kilowatt-hour in the course of a twelve hour working day. No, it seems to me that a return to the path of pre-industrial development is not going to make things right. On the contrary, we must continue on the road along which we can lift heavy toil from the back of man.

Nor does the answer lie in any religious revivalism. That does not mean a denial of the place religion and religious experience can occupy in the growth and enrichment of the human spirit. But I am convinced that such dislocations and maladjustments as we suffer from cannot be cured by neglecting them and going off into another sphere, by—to borrow an engineering term—mixing dimensions.

What, then, is the answer? Which direction can we travel? If we cannot go back to primitive simplicities—and barbarities—and if we cannot escape into a world of other-worldliness—then there is only one route left: continuation along the same route we have been traveling, the route of industrialization and mass production. But, if we follow that course, will that not lead to disaster—some of it almost directly ahead? I am deeply convinced that need not be so. Certainly not, provided we utilize the needs and respect the limitations of human nature as they have developed since the dawn of history, and provided we take advantage of the possibilities of enlarging both raw material supply and production, and the improvements in social relationships as these have been elaborated and tested by human experience. If, in short, we bring to our side a dynamic concept of human capability, if we test it realistically as we go along and if we carry it forward with faith in ourselves and in human progress and our ability to promote that progress.

In her book on the problem of survival facing the West, Barbara Ward observes that the ideas and aspirations of Western man are far from materialistic. They are in fact the most startlingly spiritual forces that have ever affected society. Starting with an essentially static world there emerged some 3,000 years ago new forces which wrought probably the most radical transformation of the human race since man became recognizable man. These are the Graeco-Judeo-Christian ideas which are the heritage and foundation of our modern Western civilization and in which the basic Greek contribution was rational vision and the Judeo-Christian contribution was moral vision. Out of that there grew man's desire to transform—and his belief in his ability to realize that desire; his desire to create; and his desire to seize on natural circumstance and to change and mold it to the use of man. Looked at from this perspective, it is the ideas of our *Western* civilization which stand out as the truly revolutionary ideas of the world and these are the ideas which must be carried forth if salvation is to be brought to man.

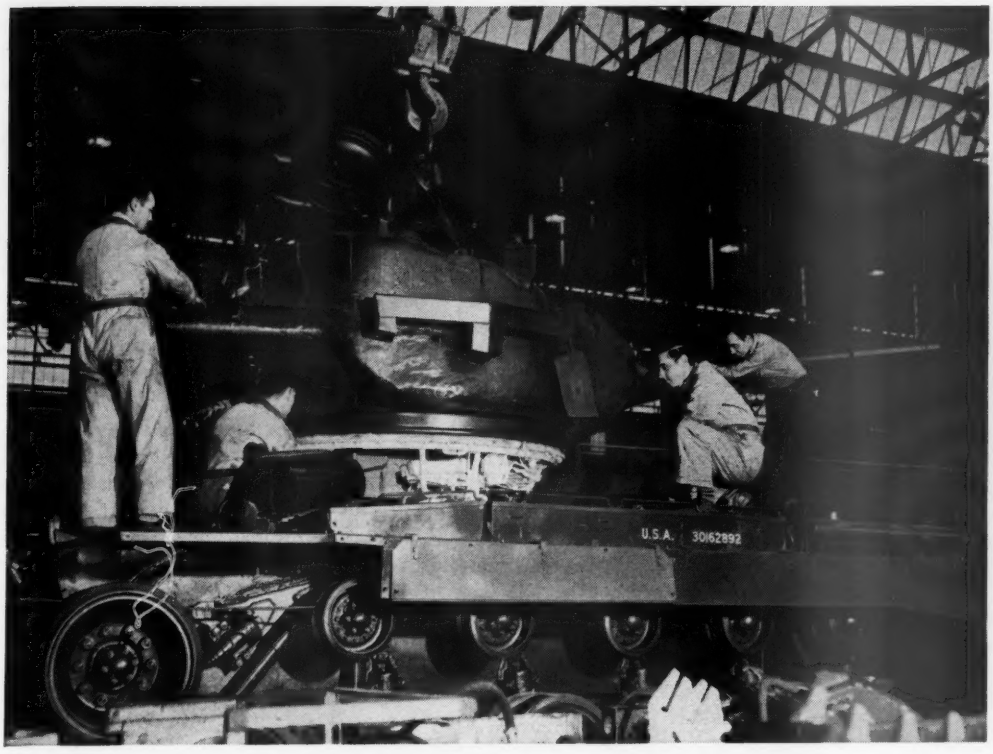
Shall we, then, retrace our steps? Denounce the industrial revolution? Try to arrest the second industrial revolution which in my view has already been going on a long time? Some, like Norbert Wiener, think we are only heading into the second industrial revolution, but I like to think that it began some 25 years ago and what we are heading into now is merely its full development. This development is going to carry to much greater heights the present mass production techniques. Automatization, of which we have seen a good beginning, will, during this phase, be carried much further, aided by the use of such devices as the computing machine and the vacuum tube. We ought to encourage these trends and developments. At the same time, we need to give them leadership.

Where and how shall we get the leadership needed? It is not likely that we shall get it from those scientists and social scientists who use a secure position of authority in their own special sphere as a springboard for pronouncements about the world at large. Atomic energy has given us some good examples of this habit. Since Hiroshima there has been a great preoccupation with peacetime uses of nuclear energy—and a vast amount of nonsense on the subject by specialists whose knowledge of the world was too limited to furnish them with a sufficiently broad perspective.

We are told by these authorities that if only man were perfect he could now realize all the benefits of an atomic cornucopia, do away with want and disease and secure riches for all. Or again that the world can be set free by the atom if only the world will first set both itself and the atom free. The use of atomic energy for bombs, we are warned, has been allowed to compromise the very necessary potentialities of the long time use of atomic power to replace oil and coal which it is said are within centuries, if not decades, of exhaustion.

It is obvious that these views—taken from a variety of sources, which should be responsible—have this unifying trait: they ascribe almost super-natural powers to atomic energy that simply are not there. Because, stripped of

(*Continued on page* 31)



The author says that defense mobilization will require $50 billion annually for the next 3 years.

THE O.D.M. AND THE JOB AHEAD

By Col. Alfred E. Howse,
Advisor to Charles E. Wilson, ODM

APPROXIMATELY five months ago, the Office of Defense Mobilization was created by Presidential Executive Order for the purpose of providing a central means of coordination for the mobilization effort. The principal legal basis for such procedure lies within the Defense Production Act of 1950. The Act provides general authority for the establishment and use of priorities, allocations, facility expansions, loans, purchase contracts, and price, wage, and credit controls. The Act specifically calls for action to prevent inflation, to preserve the value of the national currency, to settle labor disputes, and to promote the national defense by meeting the requirements of military programs and by preventing undue strains upon our civilian economy.

The President is charged with the responsibility of carrying out the legislative intent of the Congress, through the various boards, departments, and independent agencies which are responsible directly to him. The multitude of problems involved in the imposition of a mobilization effort on a continuing civilian economy makes it desirable that authority and responsibility for the program be delegated to a central point of control.

The United States had been formally at war for nearly two years and the industrial war effort was at least three years old when the former Office of War Mobilization was created. Various expedients had been tried and discarded, including the War Resources Board, the National Defense Advisory Commission, the Office of Production Management, the Supply Priorities and Allocations Board, the War Production Board and the Office of Economic Stabilization. Each of these agencies progressively was found to be inadequate in handling the transition from civilian to war economy in which a great flood of legislation introduced peacetime military conscription for the first time in American history; established rules to prevent excessive profits on defense contracts; mobilized the National Guard and Army Reserves; encouraged expansion of facilities by short-term tax amortizations; permitted the Government to requisition materials; placed exports under embargo; authorized priorities and allocations; and empowered the great financial resources of this country to expand defense production.

Conflicts between military and civilian philosophies were inevitable. The former Office of War Mobilization was created by Presidential Executive Order in May 1943 and was accepted generally to supervise all the home-front functions of the executive branch of the Government. Subsequently, the jurisdiction of the Office of War Mobilization was extended to the foreign economic field. Congress approved the wisdom of the Executive Order in establishing by statute the Office of War Mobilization and Reconversion in October 1944 at which time the functions of contract terminations and surplus property disposal were added to the original authorities.

THUS it may be seen that the establishment of the present Office of Defense Mobilization was a culminating step in an evolutionary process which was neither sudden nor

Other ODM officials. On the left is Eric Johnston, Economic Stabilization Administrator, and Charles E. Wilson, ODM Chief.

arbitrary but in line with the march of events. This time we have not waited three years to profit from our experience. The Office of Defense Mobilization is established in the Executive Office of the President and acts with authority delegated by the President in all matters pertaining to the mobilization program, excepting only those operations solely military or tactical in nature.

The Office of Defense Mobilization is a policy-making organization as contrasted with the operating agencies. Director Charles E. Wilson is assisted by a small group of mobilization specialists. The total clerical and administrative staff numbers less than 80 persons.

Wilson's men are drawn together from both parties and many walks of life. Skilled with top-level experience of World War II, they see the perils of the future and they are resolute upon practical measures to secure the safety of the nation. Their purpose is to provide the United States and its allies with the weapons and materials essential to the common cause, and to expand the basic civilian economy in such a manner as to maintain our present standard of living.

Insofar as possible, it is intended to avoid the creation of a new and massive bureaucracy and instead to rely upon the personnel and facilities of existing departments and agencies of government, virtually every one of which is concerned with some phase of the mobilization program. The new activities of price and wage control required the establishment of the Economic Stabilization Agency with its two divisions, the Wage Stabilization Board and the Office of Price Stabilization. Problems of production, priorities, allocations, materials controls, tax amortizations and loans, and similar matters are administered by the Defense Production Administration whose operations extend through the National Production Authority of the Department of Commerce. Production and allocation of materials within this country are being coordinated with a single overall agency established abroad within the framework of the North Atlantic Treaty Organization. It may be desirable to coordinate our joint fiscal and stabilization policies in a similar manner.

Results to date have been phenomenal. Approximately $1.5 billion in contracts were awarded in December 1950. Contracts awarded in January 1951 approximated $5.8 billion—thus indicating the speed with which the mobilization program was started. Contracts are now being signed at a rate of $1 billion per week. Orders have been placed for more than $27 billion of military equipment, and by July 1952 an additional $57 billion will have been obligated. We have shipped to our allies abroad more than one million tons of military equipment since March 1950, in addition to aircraft and naval vessels delivered under their own power.

WE and our allies are faced with world shortages of many minerals and materials essential in modern warfare. In our own best interest, it is evident that we must determine some policy with regard to both the common distribution and use of our joint supplies of these crititcal items.

We are increasing production of basic materials and this effort offers a challenge to engineering skills. We are taxing ourselves to send food and machinery to our allies. This is not charity and it is not so regarded. It is enlightened self-interest. We are spending money and materials to reinforce that part of the world with which we have a common cause. It is an expensive process but it is strengthening us. The aid we are rendering is a good investment in the direction of preventing war.

In 1940, our gross national income was $184 billion measured in 1950 prices. In 1944, the peak war year, income rose to $298 billion. In the second half of 1950 the annual rate of income, seasonally adjusted, was $285 billion. Defense mobilization will require an expenditure of some $50 billion annually for the next three years. The national income should approach $310 billion for 1951, some $325 billion for 1952, and some $345 billion for 1953. Thus, it may be seen our potential today is greater than ever.

At the peak of World War II, some 45% of the national product went into defense expenditures. In the spring of 1951 only 8% of the national product is so earmarked but the proportion will rise to 15% by the end of 1951. At the height of the defense effort, as now calculated, the program will require approximately 20% of the national product. If we avoid all-out war, we can carry a defense burden and yet have enough resources left over to increase our basic industrial strength, and to provide a very good standard of living for our people.

Our productive economic strength depends importantly on manpower.

In 1940 our total labor force included 56 million with 8 million unemployed, .5 million in the armed services, and 48 million in total civilian employment.

In 1944, the peak war year, our total labor force included 66 million with .6 million unemployed, 11 million in the armed services, and 54 million in total civilian employment.

By the end of 1953, our total labor force should include 69 million, with 2 million unemployed, 3.5 million in the armed services, and 64 million in total civilian employment.

THUS we have the manpower resources to accomplish the job ahead, if we make the best use of our skills. Further, we have coordinated all Federal scientific research and development activities within the supervision of the Office of Defense Mobilization.

Our productive progress over the years has come from improved machinery, science and from proper use of manpower skills. Over the decades our population has doubled every 50 years, but our output of product has doubled every 25 years. This is the true meaning of our industrial system wherein lies our margin of superiority. Considering the American people have the most highly

developed industry, science and labor skills in the world, we should face with confidence the threat from a combination of backward peoples and nations who do not approach us in either skill or productive capacity.

Such a program of expanded production effort imposed on our civilian economy immediately raises the spectre of inflation which is painfully apparent in the high cost of living to every housewife who goes to market. The millions of people depending on their savings and upon fixed incomes are faced with the nightmare of fear that the dwindling purchasing power of the dollar will put them on a starvation level. Pensions, Social Security payments and investments in insurance and bonds are in terms of fixed money amounts. If prices go up and the value of the dollar goes down, the security intended thus becomes a mirage.

By the time the Office of Defense Mobilization was created in December 1950, inflationary pressures had already mounted to a dangerous point. From the outbreak of the war in Korea in June until December 1950, wholesale prices increased 11% and consumer prices were raised 5%. Individuals and corporations stampeded to buy goods. Business expenditures for new plants and equipment rose 25% between June and December, and business inventories rose 15%. Consumer credit swelled to a record high of $20 billion. Commercial bank loans reached a new high of $53 billion and the rate of turnover of bank deposits increased significantly.

To meet the increasing strains on our economy, the Federal Reserve Board has taken counter measures. The Board has restricted housing credit with Regulation X; it has curbed consumer credit with Regulation W; it has raised bank reserve requirements to the limit of the law; and it has increased margin requirements on stock purchases. In cooperation with the Federal Reserve Board, the Treasury Department has issued a new type of non-marketable Federal bond, for the purpose of decreasing the supply of money in circulation.

In order to prevent further upward spiraling of prices and wages and in order to establish economic controls before the major inflationary impact of defense expenditures was felt, a general freeze of all prices and wages was instituted on 26 January, 1951. Necessarily many inequities were caused by the price and wage freeze. It is now the duty of the Office of Price Stabilization and of the Wage Stabilization Board to thaw the freeze and to stabilize these inequities. Efforts in this direction continue.

The enormous task of preparing a series of detailed orders to fix prices on a multitude of products has begun. Price increases for retail stores and manufacturers have been limited. The helter-skelter price increases that occurred from the day of the Korean invasion in June 1950 until February 1, 1951 have been blocked and a new plateau of price stabilization is in the offing.

The newly constituted Wage Stabilization Board has convened and is now attacking with vigor the accumulated backlog of wage problems.

The author says we can still meet defense needs and hold living standard.

At the same time we are blocking inflation on the price and wage front, Congress has been asked to increase taxes by $10 billion in order to absorb excess purchasing power.

The maximum impact of the defense program will not be felt until the end of this year. The greatest scarcity of materials, and hence the greatest need for controlling the flow and use of these materials, will arise some months from now. Similarly, the greatest pressure on prices and wages—the most serious threat of inflation—lies in the future.

Congress has been asked to extend the Defense Production Act in order that present authorities may not lapse in June. In addition, Congress has been asked to provide further safeguards against inflation by authorizing controls of commodity speculation, stabilization of residential and commercial rentals, and the establishment of price ceilings on agricultural commodities in accordance with a program of stabilized parity prices.

(*Continued on page* 34)

WAR WITH RUSSIA? DEFERMENT?— P. E.s' THINKING ON CURRENT QUESTIONS

More Opinions by NSPE Members On Professional And World Problems As Determined By An AMERICAN ENGINEER Survey. Do You Agree?

By Barbara Haislip, Staff Writer

—Last of Two Installments—

THIS article is the second in a series of two articles based on the results of a questionnaire which was sent to several hundred NSPE members in an attempt to find out what the average member is thinking on various subjects. Answering members were given the choice of identifying themselves or remaining anonymous. Answers to the first thirteen questions may be found in the April issue of the magazine and, as in last month's installment, the questions will be listed first in blackface type, followed by the evaluation of results.

14. Do you feel that your college preparation for engineering was adequate? If you like, give reasons for your answer. Sixty-five per cent of those answering this question felt their college engineering training was adequate, and their answers were similar to that of Edward L. Maguire of Clark Township, New Jersey, who said, "Yes. Curriculum was designed primarily to develop thinking capacity and analytical views of any problem." Also on the cheerful side was Edward F. Cross of College Place, Washington, who replied, "Yes. It was thorough, and required intensive application." Squarely in the middle of the question was Ronald W. Updike, Speedway City, Indiana, who wrote, "For engineering, yes—for professional responsibility toward society—no."

Of the 30% who were dissatisfied with their college preparation, opinion was rather evenly divided into three classes. The first group felt that many so-called "basic subjects" should not be required of all students, and Robert W. Mellis of St. Louis, Missouri typified this attitude by answering, "No. Theory subjects such as calculus, dynamics, etc., should be *elective* instead of *required*. An estimated 80% of graduates will never use these subjects. This would leave more time for more practical electives, such as personnel management, economics, etc."

A representative voice for the second group who favored a longer course was Richard R. Coulter of Columbia, South Carolina, who said, "No. I think a five year course is necessary and Public Speaking should be required." Spokesmen for the third group are too numerous to quote, but they felt in general that their curricula made no provision from a time standpoint for the inclusion or choice of artistic and cultural courses in their studies.

15. Are you active in any Civil Defense organizations? In what capacity? Thirty-four per cent of those responding stated that they are presently active in some phase of Civil Defense work, many of them serving as community CD leaders, or aiding present committees in an advisory capacity. Many who are not working on Civil Defense stated that their community has no CD organization as yet, or that they had volunteered their services but have not been called to serve at this time.

The survey shows that about half of Society members are veterans. Also, it was found that engineering specialization (like heating, center photo) was often mentioned as greatest change in recent years in profession.

16. Would you like your son to be an engineer? Give reasons for your answer. Seventy per cent of those quizzed wanted their sons to follow in their professional footsteps, 19% did not, and 4% were neutral on the subject. Typical comments on the affirmative side ran like this—"Yes. An interesting and satisfying profession," and "It is a business where you deal with *facts* not fiction." Mr. Virgil Spencer of East Petersburg, Pennsylvania said, "It is good basic training and could lead to business and management jobs."

Several members who wanted their sons to be engineers mentioned that the profession itself was very satisfying and valuable, but financial returns were not satisfactory in many places. Those who did not want their sons to be engineers generally listed as their reasons a lack of professional unity, lack of contact with people, lack of recognition and the lack of a control on the supply of engineers. One member responded facetiously, "Yes. Tsk, tsk—what a question—this is the life."

17. Which of the following magazines do you read? The percentage of those members who either regularly read or subscribe to the magazines is listed beside the title of the publication.

A. Readers' Digest	83%
B. Life	76%
C. Time	55%
D. Saturday Evening Post	51%
F. Fortune	30%
G. Quick	26%
H. New Yorker	18%
I. Atlantic Monthly	9%
J. Saturday Review of Literature	4%

18. Are you a veteran? If so, which war? Were you an officer? Were your engineering talents utilized while in service? Of the members answering, 47% are veterans, and, of this group, 43% served in World War I and 57% in World War II. Again, of the veteran group, 75% were officers, and 65% felt that their engineering abilities were used properly while in the armed forces. Many non-veterans answered this question by stating that their jobs in essential industries had prevented their military service. Maurice E. Barker of Fayetteville, Arkansas, who served as an officer in World War I and II, wrote the following comment on the talent utilization question, "In part, yes. But no officer can be a technician. He must be a leader of men. He must learn to do whatever the problem demands. Engineering is less important than dealing with men."

19. Do you have faith in the United Nations? Give reasons for your answer. Forty-eight per cent of those quizzed stated they believed in the U. N. as a hope for world peace. Here are some of the sample comments: Dr. Nicola Ginzburg, Claymont, Delaware, "Only close cooperation with other nations can save our civilization"; and W. John Tolson, Boulder City, Nevada, "Yes. All infant organizations striving for the betterment of mankind have a difficult time. Witness the Christian Church and our own country's beginning. The United Nations is the world's last and greatest hope that law and morality will prevail over might and brutality."

Thirty-one per cent of the members polled do not believe in the U. N. Sample comments were: Edward F. Cross, College Place, Washington, "No. A court on such a basis should sit at a table with the country's criminals to plan a program for crime reduction"; Max H. Oldham, Tyronza, Arkansas, "No. There is no historical basis for a belief in the success of the U. N. It is a plan of dreamers that will succeed only when all the world is well fed, well clothed, and well housed. There is no prospect of this Utopia being attained within the foreseeable future"; J. B. Wilson, Indianapolis, Indiana, "It is patterned exactly after the other failure—the League of Nations. In Engineering we change a faulty design"; and John H. Bateman, Baton Rouge, Louisiana, "No. Contrary to human nature."

On the fence were 21% of the members, stating they were not sure of their faith in the organization. Typical answers were given by Albert M. Cox, Pacific Grove, California, "Little faith in the United Nations, but *hope* that it will evolve into a unity that can preserve freedom for the individual" and an anonymous engineer, "I am not sure. The UN is still a theory. A hand with all the chips down remains to be played. Selfish diplomacy may wreck it."

20. What is the greatest single change you have noted in the engineering profession in the last twenty years? Eighty-seven per cent of the members responding answered this question with their ideas on new developments in the profession. However, the generality and subjectivity of the question resulted in diversified answers which space does not permit us to list. Most frequently mentioned, however, were; specialization, registration laws, greater professional recognition, improved engineering education and the engineer's increasing need for a knowledge of public and human relations.

One answer which generally sums up the consensus on this subject is that of D. B. Steinman, New York, N. Y.,

Survey delved into reading habits of members. *Readers' Digest* and *Life* were top favorites (right). Besides reading, many NSPE'ers use odd hours to hunt, fish, and play golf.

who said, "Professional consciousness, solidarity, registration, recognition, better pay, higher respect." On the other hand, Randolph W. Mallick of Pittsburgh, Pennsylvania said, "Despite great scientific and technological progress as a result of the efforts of engineers, there has been little if any social and economic improvement for the profession. Laborers have fared better." One rather different opinion was expressed by an engineer who asked to remain anonymous, "Important engineering is done more and more by large companies, with large groups of engineers, relying more on massed manpower rather than individual ability."

21. Would you care to comment on the probable deferment of engineering students? Some sort of deferment plan, ranging from individual selection to the blanket deferment of all engineering students, was favored by 63% of the questioned members. Sample comments on this side of the issue were:

Anonymous—"I favor the deferment of students who are best qualified to continue their courses. I am not sure that grades should be the sole criteria."

Lamar W. McLeod, St. Louis, Missouri—"Yes. Having served 9 years on a Draft Board, I definitely feel that the Engineering Students should be deferred."

Anonymous—"Essential. Steps should be taken to insure full and proper use of deferred men in essential defense posts."

Of the 32% who were not in favor of deferment, opinion was almost generally agreed that deferment for engineering students would make them a favored group, and that they should be as liable to service in the armed forces as any American boy. Typical comments included:

Rufus C. Kuhl, Elkins, West Virginia—"Long range result of preferential deferments of all kinds questionable."

Bahngrell W. Brown, Lincoln, Nebraska—"It is now a 'fait accompli' and I am against it on the grounds that it is unmoral."

Allen J. Martin, Detroit, Michigan—"I do not believe that they should be singled out for deferment! Am for U. M. T. for *all*."

Anonymous—"I do not believe in deferment. The fit should be trained to defend their ideals. The unfit should be treated and given limited service."

22. Do you feel that the U. S. should send troops to Europe to support the Atlantic Pact? On this important question of foreign and military policy, 73% of the members polled said yes. Sample replies were:

Anonymous—"Yes—as encouragement for Europe to furnish troops for SHAPE."

Charles E. Blais, Providence, Rhode Island—"Yes. Our future safety depends on our willingness to help other nations to protect their human rights against aggression, just as the other nations assisted the U. S. A. in the early life of the Republic."

J. L. Adams, Denver, Colorado—"Yes. War is fire and no fire is quenched by remote control."

Anonymous—"Yes, if the proper strength can be supplied to insure their not being sacrificed."

Thomas H. Allen, Memphis, Tennessee—"They should never have taken the army out of Europe until the whole question was settled."

Many gave as their supporting arguments that we should keep our commitments as a point of honor, and added that it is to America's advantage to arm Europe rather than having to fight a world war on American soil.

23. Do you feel that war with Russia is inevitable? Opinion was well-divided on this all-important query, with 55% saying that war is not inevitable, and 40% believing that it is. 4% were not sure. Representative comments included:

Malcolm M. Steele, De Soto, Kansas—"No: I believe we can avert war by building up our military forces and by increasing our industrial production. A strong U. S. A. is the best obstacle to war."

Everett Dill, Arlington, South Dakota—"Not unless we force it on her."

Robert W. Millard, Ely, Nevada—"No. I feel we can secure a stalemate—after which we will have to aid all who want freedom; this would give freedom loving people a balance of power in the world. Allow and *encourage* Communists to go to Russia."

Joel W. Moxey, Detroit, Michigan—"Yes. Not necessarily on a world-wide scale. She could be effectively defeated in Korea-Manchuria area. Note Crimean Wars, Russo-Japanese war."

George D. Newton, Gainesville, Georgia—"If we continue bickering among ourselves and sister nations, and allow cold war and aggression to continue—yes—if we can obtain unity with friendly powers I feel war may be postponed until Russia will have all she can handle at home."

R. C. Setterstrom, Butte, Montana—"Yes, unless we have someone who is big enough to rise to the occasion who can talk sense and make sense with other people. ... Fundamentally all people are alike when they understand each other—save for a few crackpots."

24. What civic or community service work do you participate in? Sixty-one per cent of the members responding do some sort of community service work, but the answers were so varied as to defy classification. However, most members listed Boy Scout work, and work on civic planning committees.

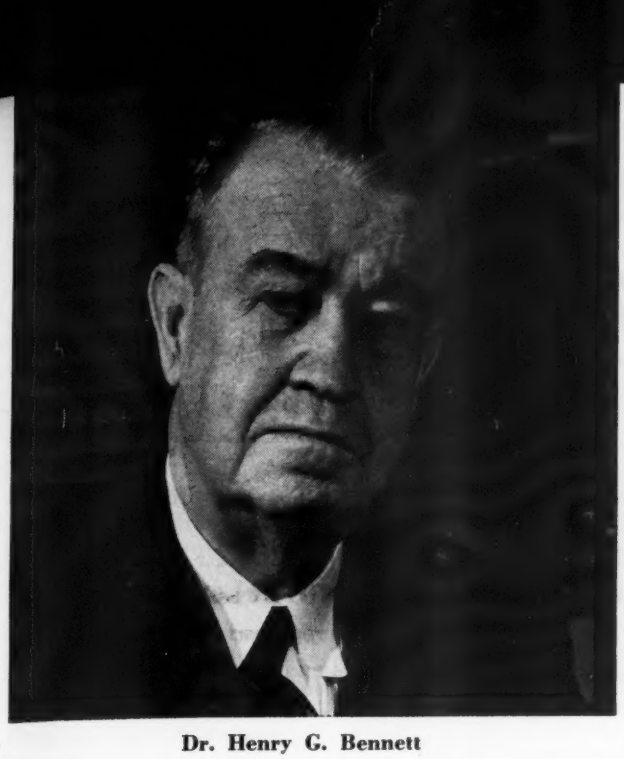
In conclusion, a composite picture of the average NSPE member, based on the results of this poll show that he is married, has two children, likes to read, hunt, fish and play golf and does not believe that war with Russia is inevitable. He reads the *Readers' Digest, Life, Time* and the *Saturday Evening Post,* and thinks the U. S. should send troops to Europe to support the Atlantic Pact. He feels that his college preparation for engineering was good, although he would like to have had more Public Speaking, Psychology and Business Administration courses. Chances are about 50-50 that he's a veteran and if he is, he was probably an officer. He favors some plan of deferment for engineering students and has faith in the United Nations.

Mr. Average NSPE Member is affiliated with at least one social and civic club, and he belongs to another professional organization in addition to NSPE. He has one or two hobbies, is a member of a church and has a rather good attendance record. Having his son become an engineer appeals to him, and he feels that the non-technical courses he took in college which have been most beneficial to him are English composition, Economics and Public Speaking.

His choices for the outstanding world figures in various fields are: Government, Winston Churchill; Religion, Pope Pius XII; Engineering, Herbert Hoover; Industry, Charles E. Wilson, Defense Mobilization chief; Humanitarianism, Herbert Hoover; Education, President James B. Conant of Harvard; Science, Albert Einstein; Music, Arturo Toscanini; Literature, Novelist William Faulkner; Theatre, Sir Laurence Olivier; Labor, Walter Reuther, President, UAW; Medicine, the Mayo Brothers; and Military, General Dwight D. Eisenhower.

His ideas for obtaining professional unity are varied, but he generally feels that greater public recognition, registration and a strong professional organization are three very good steps on the road.

Pt. 4's Bennett Heads Speakers at Minn. Meet



Dr. Henry G. Bennett

National authorities discussing important problems facing the country today, will highlight the program for the 17th annual convention of the National Society of Professional Engineers in Minneapolis, Minn., June 14-16.

Their expert analyses of current and vital matters will be part of a full program of business and entertainment planned for visiting engineers and their ladies by the Minnesota Society. A warm welcome to the nation's vacation-land in lake-studded Minnesota is awaiting all convention delegates and visitors.

Dr. Henry G. Bennett, administrator of the much-discussed point four program in Washington, will be the chief speaker at the annual banquet which will close the sessions Saturday, June 16.

"A dreamer of no little dreams, with the magic for transposing them into reality," was a phrase once used by United States Senator Robert S. Kerr in describing Bennett in 1949, when the Oklahoma Agricultural and Mechanical College was beginning its fifty-ninth year and the educator was in his twenty-second as its president.

The college was a relatively little known institution with an enrollment of 3,800 and a valuation of about $3,500,000 when Bennett became president in the summer of 1928.

At that time he announced a twenty-five year plan of expansion, including a $15,000,000 building program. Bennett was also credited, in the early 1930's with setting the pattern of the soil conservation program adopted by the United States Department of Agriculture at that time. By the end of 1949 Oklahoma A. & M. had an enrollment of 12,000 students per semester (including about one hundred from more than fifty areas outside the continental United States). Its valuation was over $50,000,000.

Ground for Bennett's future appointment as Point Four administrator may be said to have been broken as far back as October 1946, when he was chosen by then Secretary of Agriculture Clinton P. Anderson as one of twenty-four American delegates to the United Nations Food and Agriculture Organization conference at Quebec, Canada. The only American agricultural college president in a body assembled to chart a program for the relief of hunger in war-stricken areas, he became known to foreign specialists in his field.

Earlier the same day at the Saturday noon luncheon, William W. Watts, assistant administrator of the Defense Production Administration, will be the speaker. Ladies are invited to both affairs.

Saturday morning's session will be devoted to a panel discussion of the St. Lawrence Waterway by both national and local experts on the pro and con of this project. Speaking for the Waterway from a national viewpoint will be H. Chapman Rose, counsel, for the M. A. Hanna Co., steelmakers of Cleveland, Ohio; and from a local angle, Julius H. Barnes, Duluth, who has been a waterway sponsor for 20 years. Presenting the adverse viewpoint from the national level is Walter J. Kelly, Vice President, Association of American Railroads, and a local speaker to be announced.

Other speakers already on the convention program include Dr. John W. Buchta, acting dean of the College of Science, Literature and the Arts at the University of Minnesota, and chairman of the physics department at the university, whose subject will be "Romance of a Fact"; and Dr. Walter J. Breckinridge, nationally known director of the Museum of Natural History at the University of Minnesota. Dr. Buchta will speak Friday noon and Dr. Breckinridge, Thursday noon.

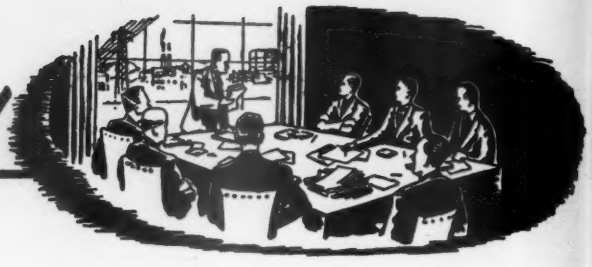
Other convention highlights include the executive committee meeting on Wednesday, June 13; the board meeting, June 14 and 15; the tour of General Electric's "More Power to America" train on June 14; a tour of Lake Minnetonka, scenic beauty spot, ending with dinner at Interlachen country club and a canape party sponsored by Minneapolis Honeywell Company; the closing banquet and dance.

The special program for the ladies includes a tour of Minneapolis and its 22 lakes, ending with a tea at the home of Mrs. Robert Longyear on Cedar Lake; a Dutch treat luncheon in Dayton's Sky Room; a visit to the five Betty Crocker kitchens at General Mills, Inc.; and a tour of the Museum of Natural History and the new Variety Club Heart hospital.

Minneapolis, known far and wide as the city of lakes, and its twin, St. Paul, will be ready to greet all visitors and give them a true Minnesota vacation. Within easy traveling distance are the virgin pine forests, the lakes and shady beaches, the good fishing and the many outdoor sports of the Minnesota resort area.

Co-chairmen of the convention committee are Paul R. Speer, St. Paul and Robert D. Longyear, Minneapolis. Other members of the committee are engineers Lynn G. Barnes, Wilmer F. Clark, Kenneth M. Clark, James A. Lang, Lester J. Eck, Leonard Thompson, Ralph H. Sprungman, C. S. Whitnah, Mr. and Mrs. Rolf E. Bergford, Mr. and Mrs. Myron L. Jones, Harry E. Gerrish, George Schroepfer, Paul B. Speer, Frank Bruce, Gordon Bodien, James J. Ryan, W. W. Fryhoffer, Theodore S. Thompson, Myhren C. Peterson, Hibbert M. Hill, Clyde L. Methven, Raymond R. Herrman, Sidney L. Stolte, Harold E. McWethy, all of the Twin Cities and Erwin S. Ward, Willmar; N. T. Rykken, Duluth; and A. M. Kircher, Mankato.

Accent on Activity



SOCIETY'S PUBLIC RELATIONS PROGRAM CONTINUES TO HOLD SPOTLIGHT . . . Next step is **FULL** report to the **BOARD OF DIRECTORS AT THE ANNUAL MEETING THIS MONTH IN MINNEAPOLIS . . . Chairman of the Public Relations Committee C. G. ROUSH** will give progress report and representative of NSPE'S Public Relations Consultants, Pendray & Co., will advise Board on ways and means of implementing activity.

MORE ON MEETING . . . Kits containing **COMMITTEE REPORTS, ETC.,** are now being printed at HQS and will be sent to all Board members to attend meet . . . **DIRECTORS ARE URGED TO STUDY KIT SO THEY WILL BE PREPARED FOR FULL DISCUSSIONS.**

THINGS ARE BEING DONE BY NSPE COMMITTEES . . . Deans of many Engineering schools are now writing Col. Chester Lichtenberg, Chairman, Young Engineers' Committee, thanking Society for distributing list of counselors for grads . . . One called it "an important contribution to the profession" . . . **THE ACTIVE CHAPTER ACTIVITIES COMMITTEE,** Joe Williamson, Chairman, has now gotten out card to Chapters asking them to name their **MOST OUTSTANDING PROGRAM OF THE YEAR . . .** Cards are being returned at good rate and comments are interesting and helpful . . . **A SPECIAL COMMITTEE ON LADIES' AUXILIARIES WILL GIVE REPORT AT MINNEAPOLIS ANNUAL MEETING . . .** Committee hints that there is **WIDE INTEREST IN HAVING GROUPS FORMED** as National, State and Chapter affiliates . . .

ANOTHER NEW PUBLICATION: A booklet to State and Chapter officials telling them how to have better meetings (reported last month) is **NOW ON THE PRESSES. WATCH FOR IT!**

FROM UNDER THE CAPITOL DOME . . . NSPE was represented at recent huge **CIVIL DEFENSE meeting in WASHINGTON** by Vice President Elect Chester Lichtenberg . . . Past President C. George Krueger . . . Executive Director Paul H. Robbins . . . Truman spoke to gathering . . . **NSPE STAFF MEMBERS WERE ON TAP AT RECENT MEETING AT STATE DEPARTMENT . . .** This was State's annual discussion meeting on foreign policy.

PUBLIC RELATIONS ITEM . . . More than **3,000** Professional Engineers Plaques have been distributed **IN LAST EIGHT MONTHS . . .** Most of these have been under PUBLIC RELATIONS PROGRAM . . . By the way, If you still have not received your plaque under the program, **YOU WILL AND SOON . . . Plaques have been held up due to metal shortage.**

WITH PRESIDENT SIDNEY STOLTE DURING HIS FINAL WEEKS IN OFFICE . . . The president has recently spoken at meetings of New Jersey Society . . . New York State . . . Rhode Island . . . Connecticut . . . Oklahoma . . . Pennsylvania . . . the Kings County (NY) Chapter . . . students at Marquette University . . . and interested engineers at Omaha . . . **ALSO VISITED WASHINGTON OFFICE TO LAY PLANS FOR ANNUAL MEETING.**

WITH EXECUTIVE DIRECTOR PAUL H. ROBBINS . . . Visited New Hampshire to witness installation of the University's 12th president and meet with Engineering Society of that state . . . On to Syracuse University and 50th Anniversary Convocation . . . Then to Pennsylvania Society meet with President Stolte and Vice President Nicastro . . . **Then at U. of Maryland to speak before ASCE Section.**

BOOK LOOKS

Title: Faith and Freedom.

Author: Wallace F. Bennett.

Published by: Charles Scribner's Sons, New York. Price: $2.50.

Wallace F. Bennett, is now the junior Senator from Utah. Prior to that he served as president of the National Association of Manufacturers, and in 1950 took office as Chairman of the Board of Directors of that organization. He began his business career as an office clerk in a company he was later to head—the Bennett Glass and Paint Company.

Mr. Bennett is a man with an undying faith in America as it was originally conceived by the Founding Fathers. Referring often to the Constitution, our history, our traditions, Mr. Bennett impresses the reader with the reasons for America's great success and why, unless we are careful, we may lose the way of life we cherish.

There are those who, upon reading this book, will undoubtedly have the feeling that Mr. Bennett's suggestions on how to keep the U. S. great, are somewhat short of realistic. Many will feel that although what he says is certainly true, he may be inclined to view things through rose-colored glasses a little more than he should. This is not an objective look at America today—*Faith and Freedom* is really an essay. In these days of political confusion throughout the world, and more importantly in our own nation, the reading of this book will probably be inspiring for many an American—K. E. T.

Title: Israel Revisited.

Author: Ralph McGill.

Published by: Tupper & Love, Inc., Atlanta. Price: $2.00.

This book by Mr. Ralph McGill, nationally known Southern newspaper editor and author, takes on new significance in view of the recent difficulties the infant state of Israel finds itself in. Although extremely youthful as nations go, the country has a near war on its hands with neighboring Syria, in addition to all of its normal growing pains.

Mr. McGill's book is really an on-the-spot report covering the days when the Israeli nation was starting to be born in 1946, and a good account of what has transpired since that time.

Mr. McGill was in the new nation before it was constituted and then he left to return in the spring of 1950. The book, which was written after his return, is a factual, objective account of a complex, daring experiment.

This is a seasoned reporter's observation of a nation of one million (a third of whom have immigrated in less than two years) whose population represents a multitude of nationalities, cultures and tongues, and includes at once the finest minds in the world and the world's most degraded and retarded people — now bound together, living side by side, and earnestly hopeful of making their nation succeed.

Here is an interesting story and a human one of a nation risen from the dead after two thousand years. It is a story about a political development in our time without parallel. Every American should certainly make it his business to know about Israel, and certainly every professional man should make it his business to know just what Israel's success or failure can do to alter the course of future events. Here is good background material to aid in doing this.—K. E. T.

Title: The 1950's Come First.

Author: Edwin G. Nourse.

Published by: Henry Holt and Company, New York. Price: $2.00.

The main concern of this book is to promote ways and means of raising and stabilizing the level of our economic life.

Dr. Nourse feels that inflation is the great threat to our economy of the 1950's, and he sees inflation as an understandable and controllable result of the foolish and self-indulgent things we ourselves do in our domestic affairs, our business practices, our voter action (or inaction.) The book ends with the stinging accusation of collaborationist to those who would let inflation undermine America.

Dr. Nourse served for three years as the first Chairman of the Council of Economic Advisers to the President. He resigned when he found that "under existing circumstances the Council could not operate as a professional and non-political agency." Since his resignation he has been taking his economic views to the country. —B. H.

OUR AUTHORS

Philip Sporn, P.E., (The Engineer, The Machine Age, and the World of Tomorrow—page 6 and cover), was born in Austria. He came to this country as a child and was graduated from Columbia University in 1917 with a degree in electrical engineering. He also holds honorary degrees from Stevens Institute of Technology and the University of Grenoble, France. He joined the staff of the American Gas and Electric Company in 1920 and was appointed president of that concern in 1947. He has served on many government committees advising the Nation on such important problems as atomic energy development. Mr. Sporn is a member of the A. I. E. E., A. S. M. E., A. S. C. E., N. S. P. E., and various other honorary and fraternal organizations.

He has been active in such developments as the construction and operation of integrated power systems, the transmission of electric power at extra high voltages, and the generation of electric energy by steam operating at high temperatures and high pressure, to mention but a few.

Colonel Alfred E. Howse, (The ODM and the Job Ahead—page 9), is a retired U. S. Air Force officer. As Executive for Procurement for the Air Force in World War II, Colonel Howse supervised the development of the 50 billion dollar procurement program. He also was the author of the so-called "V" loan program for war financing through the National Banking System. He served as Acting Chief of Staff of the Air Force supply program in the South Pacific. After retirement from service, he was a special consultant for the National War Agencies and the Contract Terminations Board, and was attached to the Office of War Mobilization Reconversion as administrator of the Surplus Property Board.

For many years, Col. Howse has been in business in the Southwest, with headquarters at Wichita, Kansas, where he is chairman of the Howse Company, Incorporated, a retail hard lines firm.

Colonel Howse was named to advise Charles E. Wilson, Director, Office of Defense Mobilization, on general economics in the early part of this year.

HERITAGE AND STEWARDSHIP

Our problem as engineers is to be as effective as possible in our profession. Our problem as engineering educators is to bring along a new generation which will be abler than ourselves to handle successfully the problems which they in their turn will face.

New scientific advances have opened up new technological possibilities. Most sensational of these is utilization of atomic energy. The demand for improved standards of living and higher wages makes it necessary continually to develop new machines and methods for production and control of operations. The growth and mobility of our population is causing difficult problems of transportation. These are only a few examples of present problems and future opportunities in the engineering profession and all of them require both specialized and general training to an ever-increasing degree.

To these increasing challenges to the engineering educator is added the fact of our population growth, and the estimates are that within a dozen years or so the number of students entering our institutions of higher learning will have doubled.

Superimposed on all of this there are now increasingly insistent demands for national military preparedness and our engineering schools as well as our other institutions of higher learning are being called upon for services of staff and laboratory. In so far as operations are concerned, the present bottleneck is not so much dollars as it is technically competent manpower. In so far as capital facilities are concerned, however, there are urgent needs and opportunities which are being met only partially.

Finally there is a problem which is of especial concern to the faculties of our institutions. It is not a new problem because it has grown with the growth and success of engineering as a profession. It is the problem of providing an education which will prepare as well as possible the engineering students to meet their future opportunities successfully.

Along with this trend has come another which is looming large in the thinking of engineering educators and that is the increasingly important role of the engineer in our society. This increased importance brings with it responsibilities for consideration of social problems as well as the more strictly technical problems. Immediately to mind comes the problem of labor and other industrial relations. Of increasing importance also is the engineer in political life, since so many important positions, elective or appointive, require the services of the engineer. And even beyond this is the responsibility of the engineer for his performance as an ordinary citizen, a responsibility which I like to think is no different from that of any other citizen, except that the significance of his special knowledge of the vast category of problems and operations important to society gives him perhaps a greater opportunity and therefore a greater responsibility to perform wisely, not only in these technical areas, but in other areas which are affected by them. Hence we have increasing emphasis on the awareness of the engineer as a member of society and an attempt to develop this awareness constructively through curricular and extracurricular activities.

Fortunately, the engineering educators do not have to meet these problems single-handedly. The public generally has become more aware of the engineer's importance and is providing increased moral and financial support for his education. This is particularly true of the forward-looking industrial corporations which see in the training of young scientists and engineers and in the advancement of science and the engineering arts the most tangible of all possible assets for their own future performance.

All of us together have a great heritage of whose values we are the custodians and the promoters of future benefits. May we discharge our stewardship with good judgment, with effectiveness, and with enthusiasm.

DR. KARL T. COMPTON,
The Bent, official publication of the Tau Beta Pi engineering fraternity.

ECONOMIC POLICY FOR MOBILIZATION

The American people now have a "job of work" to do vast in scope and crucial in significance. The task may not be measurable as yet in precise terms but its essential nature stands out much more clearly since the acts of Communist aggression in Korea. The free world has been put on guard. A time of testing has come. Our own survival and that of other free peoples is at stake.

The defense effort is primarily deterrent in its objective and differs markedly as to scope and timing from what it would have to be in the event of all-out war. The armed forces are to be built up promptly to a strength of 3,500,000 men. Many feel it essential to adopt a plan of universal military service and training which will involve all young men beginning at age 18. The over-all bill for defense in the fiscal year 1950-52 is estimated by the President at more than $52 billion, or approximately 19% of national income. Military equipment must be produced and at the same time the capacity to produce must be built up and maintained in a state of readiness. This roughly is the blueprint of a mobilizing U. S. A. We will be living in a new and unfamiliar atmosphere. We must apply ourselves diligently to the problems—stupendous but not insoluble—of keeping America strong in a full and complete sense.

For an indefinite term of years it will be true of us when Nehemiah rebuilt the walls of Jerusalem that everyone must carry a spear in one hand and a trowel in the other.

In this situation the health and vitality of the American economy is of prime importance. Our economic system is our first line of defense. It will remain the chief source of aid for peacetime recovery and development in many countries. On it rests largely the possibility of effective cooperation through the United Nations and other channels in grading up the living standards of the under-developed areas of the world. These are large and sobering responsibilities. Per-

haps at no time in history has so much depended on the successful functioning of the economy of a single nation.

Such considerations place a spotlight on the important role to be played by business, labor, and agriculture and by all of the social and religious institutions concerned with the preservation and enhancement of our free society.

American capacity to produce, as someone has put it, is our real secret weapon. This was demonstrated in World War II when total output grew enormously despite restrictions and cutbacks in some lines. Unless and until we are engaged in all-out war we shall do well to combine the military build-up with the largest feasible support of our underlying industrial and civilian strength. A major diversion of resources to armament needs is, of course, an immediate necessity.

In spite of everything that can be done to increase production, however, there will remain an inbalance between supply and demand which will generate powerful inflationary tendencies. Inflation must be recognized as one of the most, if not the most, portentous internal enemy.

In order to check the price-wage spiral, our government has adopted a set of direct controls designed to stabilize prices and wages. This decision having been taken, it is now imperative that we do everything within our power to make these price and wage controls work as effectively as possible. Price and wage controls will not by themselves stem the tide of inflation. They deal with symptoms rather than with underlying causes. They can be helpful provided other steps are taken to reduce the real causes of inflation. They will be harmful if we are lulled into a false sense of security and fail to take the other steps that are necessary.

It is obvious that the solution which would be most palatable would be a substantial increase in production, but as already stated, an increase in production is not enough. Strong measures will be necessary to hold down demand. The program will affect the activities of government, business and of private individuals. Four lines of action are recommended:

1. Drastic steps should be taken to reduce all government expenditures not clearly essential to the defense effort.

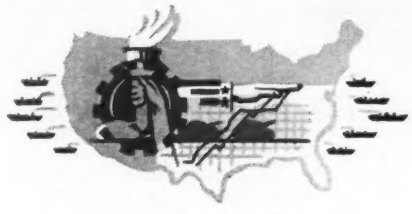
2. Taxes should be raised sharply and promptly, to restrain consumers' expenditures as well as to increase revenues.

3. The expansion of bank credit should be checked.

4. A national program to encourage savings should be inaugurated.

The successful development of such a strategy and its prosecution for a sustained period will require the full understanding and support of the American people.

If this were a totalitarian country, those in charge of thought control



could activate without interference the entire apparatus of education and public information. But as has been aptly demonstrated, such a procedure does not inform and does not educate. Fortunately, we are a free people with free institutions. Our reliance must be on the voluntary activity of our schools, our churches, the press and radio, farm organizations, business and trade associations, and the many other instrumentalities of conveying information and stimulating discussion.

In the last analysis our security depends on the moral and spiritual character of our people. The spirit and mettle of the American people are now about to be tested to the core. Each must do his part to assure survival and progress toward the highest aims of a free society.

WESLEY F. RENNIE,
Executive Director of the Committee for Economic Development. *The Constructor, April, 1951.*

PREPARATION FOR LIVING

We in the engineering schools have undertaken the task of the whole education of the engineer. And by "whole education," I mean that we have assumed the responsibility of offering to the neophyte professional this opportunity to prepare himself to attain "those attributes of a well balanced mind which enable him to live intelligently in his environment."

Engineering has definitely passed out of the limbo of the empirical arts and into the realm of the rational. But we must accept partial guilt, among ourselves, at least, of the charge that has been laid before our door time and again of restricting the young engineer's development to the point that his usefulness, influence and interests are not adequately developed for intelligent living. I do not hold with the majority of our accusers that the engineer's education is more stifling than is that of the average liberal arts graduate. In fact, I honestly believe, that the engineering graduate has a far broader and more beneficial education for himself and for society than does the non-scientific major with an A.B. degree from the average liberal arts curriculum. The point I wish to make here, and to emphasize, is that we have in our student bodies young men whose abilities are such that they may be the leaders of world thought and of world betterment and that we, as engineering teachers, may not be exerting ourselves adequately to that end.

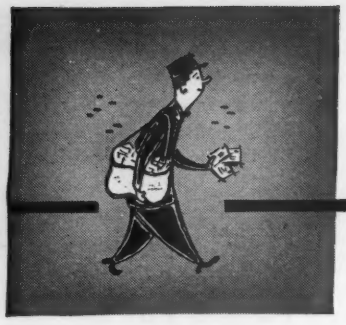
Let us concede that four years is an all too short period to provide the technical and scientific background that an engineer must possess to practice in a creative profession. I think that we are properly jealous of every minute of the time that each student spends outside our individual classrooms. I think that the engineering and science departments are exceedingly generous in granting to others twenty per cent of his valuable time. In fact, I am not too convinced that by this generosity we have strengthened our curricula as media for preparation for "living intelligently" in the young engineer's future environment.

No matter what the course, we have every means of providing a grand opportunity for those who sit under us to develop an analytical approach to every problem they may face. What is it then that may perhaps result in our graduating from the engineering curriculum men of little tolerance and understanding of anything outside the specific courses we have subjected them to? I think perhaps it may be that so intent are we in developing immediate proficiency in a narrow specialty that we ourselves hardly recognize the complete usefulness of the tools we have at hand.

With several notable exceptions, when we place our engineering students in the hands of these specialists we only tend to narrow their education rather than to broaden it, and there are some within the ranks of the colleges of liberal arts themselves who declare that their colleges contain a larger majority of specialists than do the professional schools. I think that there is much truth in what they claim.

I wish to emphasize that the burden is on our shoulders and not on those to whom we have allotted a

(*Continued on page* 30)



TO THE Editor

50-50 . . .

Dear Editor:

. . . I would like to suggest special emphasis on a campaign to make it unfair for any company to take an engineer employee's idea for $1.00 and other valuable (?) considerations, without a share of the benefit to the company. This might take the form of an effort to have the law changed to accomplish this result, and define and provide a legal minimum.

In other words, the services of a professional engineer would have to be on a retainer basis with a clause for a share of the gain due to ideas contributed. This would make it much more desirable to become a registered professional engineer and would help to increase membership in the national society.

A fight to put across this suggestion should have the effect of uniting all engineers behind it and directing attention to the campaign for recognition. It might also have the effect of starting some voluntary compliance with the principle involved.

ROY F. DEHN, P.E.
Cleveland 10, Ohio

Defense . . .

Dear Editor:

Your attention is invited to the editorials in the current numbers of *Design News* and *Product Engineering*. Though we are now in World War III, we are making the same manpower mistakes we made in World War I, in which I was a personnel man.

I have been a member of the American Ordnance Association since 1920, so I know the importance of industrial preparedness. In our desire to be democratic, shall we put "nit-wits" to design gun carriages as we did in World War I and send men of great intelligence, our most precious asset, to be infantry replacements as we did in World War II to my own knowledge?

We are merely playing into the hands of Joe Stalin. I do not mean to say that an engineer is better than any other citizen, be he lawyer or laborer. However, he is very necessary to our industrial preparedness and the supply is getting shorter.

Both the American people and our armed services seem to blunder from crisis to crisis. Copies of these editorials should be furnished to all members of the armed services committee in both House and Senate.

A campaign to warn our people of the danger of this situation should be started at once with throttle wide open.

CARROLL D. BILLMYER, P.E.,
Kingston, R. I.

How Many P.E.'s? . . .

Dear Editor:

In reply to some of our fellow engineers who advocate reducing the number of future engineers like the other professions, may I add that this is not up to us, but to the number of engineers that Russia and her satellites are training. If we foolishly reduce the number of engineering colleges in each state like the medical and the architectural professions have, we would have lost World War II. Is public safety dependent upon such a practice?

An interesting article appears in *Architectural Practice* by C. Cowgill, President of the National Council of Architectural Registration Boards and B. J. Small, Vice President of A.I.A. New York Chapter:

"It is true that the proponents of some statutes licensing certain persons to perform certain acts have as their real but secret purpose the reduction or limiting of the number of competitors in the fields covered by these statutes. This objective can be accomplished by means of licensing by the establishment of standards which only a limited number may meet; and it also may be furthered by a reduction of the number of schools and a limitation of the enrollment of these schools which prepare students for engaging in those fields. This is seldom done in the learned professions, but the architectural profession should be warned by the experience of the medical profession which appears to be in danger of becoming socialized. Whether or not a reduction in the number of physicians and surgeons was the objective, such a reduction has been attained by the means referred to above. At the sub-professional level, such illegal objectives of licensing are often acknowledged. ANY Board which loses sight of the legal justification for its acts, however, is in danger of having its acts declared unconstitutional and void. Furthermore, any board member, whose decisions are influenced by a desire to limit the number of his competitors is guilty of a misuse of the power of his office." End. Ref; Page 283.

We must continue to expand—even if the engineers have to work in stock rooms during peace time and at a low salary. Each engineer thus becomes a reserve in time of war. similar to the universal military training of 18 year olds. Our country's safety is dependent almost entirely on engineers and their associates in time of war. Is one doctor per 1500 population enough in time of an atomic war upon our cities? Is it not better to have five doctors at $50/Wk. salary each who can treat fifty patients per week than one doctor receiving $250 a week and who treats only ten patients—while the other four eligible doctors remain idle because the medical board will not certify them—and in addition the remaining forty patients go without medical aid because they cannot afford the high fees. This is true of the dental profession. Is this public safety? To produce one automobile per 1500 population instead of one per family to keep the prices high and many out of work is foolishness.

STANLEY J. OZIMEK, P.E.
Maplewood, N. J.

Liberty has never come from the government. Liberty has always come from the subjects of it. The history of liberty is a history of limitations of governmental powers, not the increase of it.

—Woodrow Wilson

Dear Editor:

To Richard R. Pitts, P.E., in your March issue, a loud and fervent amen. I would not again burst into print but for the plea for more engineers heard over the radio yesterday and the claim that production difficulties was greatly aggravated by a shortage of engineers.

If engineers were to be offered a living income, they would flock to their work from farms, gasoline stations, groceries and from the many other occupations where they find they can earn more money easier.

An engineer friend of mine recently complained of his loss of a steam shovel operator who was guaranteed 80 hours a week for six months and 60 for the rest of the year. With no allowance for double time, just the time and a half for all over 40 hours at his rate of $3.00 per hour, that figures up to over 13,000 dollars for the year. Show me the engineer who has ever made that much without the responsibility of many others besides himself. I would be glad to settle for the $3.00 per hour and no overtime, and I *do* supervise the work of others.

Engineers are not working at their profession, but they would be glad to if they could afford to. Engineers are a crude and materialistic lot in some ways and often succumb to the temptation of three square meals a day and forsake the more idealistic and cultural aspects of a professional status. The trouble is that their culture is all fogged up by the large amount of mathematics they had to absorb which enables them to calculate the $6,240 that $3 an hour amounts to in a year and they take a week off and learn to run a steam shovel. Shortage of engineers—NUTS.

Yours truly,

HUGH H. CARR, P.E.,
Rochester, N. Y.

Dear Editor:

It should be clear by now that most of the nonsense about a shortage of engineers was originated by the college professors who were afraid of losing their jobs if the number of engineering students deceased . . .

Stupid as most engineers are about economics, some of us realize that price is the ratio between supply and demand. The only ones really worrying about a shortage are those who have been accustomed to employing engineers for something less than they pay their mechanics,

The economic ills of the engineers in the past have been due to the fact that the supply has far exceeded the demand. In fact, only a year ago opinion was unanimous that only one-half of the engineering students about to graduate would find jobs in engineering and many competent men were unemployed. It was only Korea and

the rearmament program which saved us from serious unemployment. What would happen tomorrow if we were suddenly faced with a permanent peace?

To those chronic worriers who fear a "shortage" of engineers may injure the defense effort, I suggest that the Army does not seem to be concerned; in fact, is drafting young men with Doctors' degrees in engineering as buck privates.

One of the purposes of the N.S.P.E. is the improvement of the economic condition of the profession. The surest way to do this is to decrease the supply. We should, therefore, make it plain that we do not support the teachers in their desire to enroll more students. What is needed is a smaller number of higher quality. This is the policy which the medical profession has followed with conspicuous success.

MILTON H. BLEZ, P.E.
Bronxville, N. Y.

Man is born a predestined idealist, for he is born to act. To act is to affirm the worth of an end, and to persist in affirming the worth of an end to make an ideal.

—Justice Holmes

Titles . . .

Dear Editor:

Re. your letter from Mr. Raymond J. Selwyn, P.E., of Los Angeles, Calif., in the March issue of the AMERICAN ENGINEER:

I believe that the present system of awarding professional degrees by colleges and universities is somewhat better and more effective than Mr. Selwyn's "E. G." Degree in place of the present B. Sc. As it is now, an Engineer of proven ability possessing a B. Sc. may, after fulfilling certain more or less standard requirements, earn a Professional Degree in his particular line of Engineering. The Civil Engineer may earn his C.E.; the Mining Engineer his E.M.; the Mechanical his M.E.; etc., on down the list of specialties in the engineering profession. These degrees should be one of the prerequisites to the establishment of a consulting practice for all engineers.

The professional engineer's shingle should read "John Jones, C.E." which should establish him just as the M.D. establishes the doctor as a Medical Doctor or the O.D. as an Osteopath, etc. People reading the sign will see that Mr. Jones is a competent Civil Engineer and is recognized as such by an accredited college or university.

Mr. Selwyn has an excellent idea on the reciprocity angle. Any Engineer who has earned his professional degree as well as his B. Sc. from an accredited college and has had the initiative and foresight to register himself in the State of his choosing and for some reason finds it desirable to move to another State should not be penalized by a conflict of requirements for a license to operate in another State. Regulations should be uniform throughout these United States and the Engineer should be permitted to receive his license in another State by reciprocity.

GEORGE F. WEATON, P.E.
Flat River, Mo.

Dear Editor:

Mr. Selwyn's letter on page 23 of the March issue contains an excellent suggestion as to authorizing a specific degree for recently graduated engineers. The Germans have, or did have, a somewhat similar system. A German engineer once gave me his card and I noticed "Dip. Ing." after his name. On inquiry he explained that it meant "engineer with diploma."

However, I do not agree with Mr. Selwyn's criticism of comparing engineering with other professions such as medicine, dentistry and law. As I understand it these comparisons have been made in writing and discussion for the purpose of making it clear that engineering is just as much a profession as the others cited and that the engineer is entitled to the same standing in the community and the same basis of compensation as those who practice the more widely known professions.

Perhaps a story told about our ex-president expresses somewhat the public ignorance in the matter. Before he had become a world figure Mr. Hoover was crossing the Atlantic and made the shipboard acquaintance of an elderly English woman. One day the following dialogue took place "And what is your profession, Mr. Hoover?" "I am an engineer, Madam." "O-o-o-h, I thought you were a gentleman."

Perhaps I feel the situation more keenly because I am the first registered engineer to enter practice in this small but rapidly growing city and find that I am regarded as somewhat in the same class as a mechanic or perhaps even a laborer. Frequently when I am asked to quote a price my prospective client is horrified when I fix a sum based on professional services. He will pay three to four dollars an hour to a tradesman and think nothing of it and he seems to think an engineer should work on the same basis although he recognizes that a doctor or a lawyer is entitled to a fee based on his professional knowledge.

Any effort we can make to educate the public to the fact that the engineer is a professional man and is entitled to compensation on the same basis as those engaged in other professions is well spent.

LEROY A. PALMER, P.E.,
Barstow, Calif.

More Seaway . . .

Dear Editor:

I have been much interested in the article in the AMERICAN ENGINEER for April, "From Duluth to the Sea," which contains valuable data on the proposed St. Lawrence project.

Disregarding some instances of careless proof reading, such as the statement that the United States will contribute *six million* dollars and Canada *four million* dollars to make a total of *one billion dollars*, there are some obvious and unfortunate instances of distortion of fact, such as might be expressed in an *ex parte* statement but which have no place in an honest unprejudiced engineering analysis to which the AMERICAN ENGINEER should confine itself.

Among other things, the implication is not fair that all the opposition to the project stems from selfish sources, such as the railroads, which are criticized in the article for their "long standing feud" with "government subsidy for competing means of transportation."

The criticism from taxpayers, many of whom oppose the uneconomical expenditure of public funds, might well have been mentioned among the opponents of the project.

The prestige of the engineering profession is not strengthened by such an article!

SIDNEY WITHINGTON, P.E.
New Haven, Conn.

► **See "To The Editor" in May issue.**
—Editor.

"Engineers" . . .

Dear Editor:

Enclosed is an announcement of the type that sets "us" engineers on our ear, so to speak. Anybody, no matter what he sells, digs, drives, climbs, watches, speaks to or about, claims to be an engineer.

I believe when a man has reached the point that he can become Professional the term engineer should be dropped as meaningless and let these fellows have it. The public seem to accept them so let 'em have it.

After all a medical man is an M.D. until the state says he can practice and then everybody calls him a Doctor. Well, why can't we, when the state issues the license, call ourselves Doctors? The address would be Doctor Joe Doe, Engineering Consultant, or Electrical Consultant, Mechanical Consultant, etc., if the term engineer is to be dropped completely.

I think enough talk has gone by the board and now it's time to do something concrete about it. I'm tired of everybody, simply because he has a clean shirt, calling himself an engineer.

If we are going to get ourselves in a Professional class, thus a new name is all that's going to do it. Engineer has been applied to so many, so loosely, so long that it has become meaningless to the public. It's the public we are trying to gain "bigness" with and the name Doctor seems to work like magic—Why can't we use it?

WILL D. SAMPSON, P.E.
San Antonio, Tex.

We can never be certain of our courage until we have faced danger.

—La Rouchefoucauld

Roses To The Dean . . .

Dear Editor:

Dean Dougherty's article, "The Professional Torch" published in the February issue of the AMERICAN ENGINEER is so well written and so very definitive of the professional consciousness that must be present in the truly professional individual, that I could not refrain from expressing my compliments to the writer and to the AMERICAN ENGINEER for a fine and inspiring piece of work.

If the thoughts expressed in this article could only be carried in the hearts of a larger number of engineers and would then govern their day to day actions and performances, the engineers as a group would have no difficulty in being recognized as professional people. Professional consciousness may become more general in our profession as more educators, like Dean Dougherty, are able to impart the idea to their students and as more graduates accept and live by those ideas and themselves become "Torch bearers."

A. G. BEHLING, P.E.
Milwaukee, Wisc.

NSPE's PR Consultants To Outline Program At Meet

Pendray & Co., public relations consultants to the NSPE, will present a suggested program on how to carry out the Society's 4-Point Public Relations activity, at the Annual Meeting, June 14-16, in Minneapolis.

This is the latest development on the much-discussed public relations program, and will be the first time that means of implementation has been discussed by the Board of Directors, since the fund raising drive to support the program was begun last fall.

It is expected that the public relations experts will give the Board suggestions on how the story of the professional engineer can best be gotten across to employers, users of engineering services, educators and the general public.

Another development is a proposed third mailing to members who haven't contributed requesting their support before the campaign closes. It is hoped that many more members will join the more than 3,500 who have already given over $26,000.

Additional Contributors . . .

ARKANSAS
Fred W. Olney

CALIFORNIA
Paul R. Babcock
Arthur H. Driver
Howard A. Felten
William Pier Field
Joseph A. Lederer
C. K. Sencebaugh
S. John Wengeler

COLORADO
Samuel H. Hawkins
O. W. Walvoord

CONNECTICUT
E. Beard
Alexander N. Chapman
New Haven Chapter

DELAWARE
John W. Alden
Edward T. Ericksen

GEORGIA
Derek C. C. Peters, Jr.

ILLINOIS
William O. Anthony
Fred D. Ellis
William Fecht & Associates, Inc.
James R. Fuller
M. R. Golly
Robert G. Kramer
Daniel E. Wright

KANSAS
Edwin P. Knapp
Ralph O. Smith

MASSACHUSETTS
Abbott Allen
Richard J. Donovan
Frank E. Reeves
Clarence R. Westaway

MICHIGAN
Henry Proctor Barnes
R. Catanach
Hathaway J. Hanes
Arno Koch
Glen E. Lankton
Joel W. Maxey

MINNESOTA
Peter D. Carlson
Howard Ecker
E. W. Johnson

MISSOURI
B. J. George
Roger C. Higgins
Robert W. Patton

NEVADA
J. A. Tiberti

NEW JERSEY
Horace L. Bickford
Lloyd E. Oneal
Edward Saphore
Thomas W. Stewart
C. L. Ward

NEW YORK
Julius B. Delitsch
R. B. Dillenbeck
Arthur H. Ferber
William L. Herron
Frank J. Moles
Roy Saxton Moore
Norman S. Odell
Leland R. Post
Jack R. Roitburd
Otto J. Sambach
Albert L. Stevenson
Charles E. Ward
Louis A. Whalen, Jr.

NORTH CAROLINA
Frank Wooten, Sr.

OHIO
George J. Brunner
W. S. Campbell
J. Collins
Albert Coope
Frank Eroskey
Lloyd W. Ganschow
George R. Glascow
Robert L. Keller
Donald D. Mallory
Bernard T. McFerren
Walter V. Magee
Karl H. McLaughlin
Ohio Valley Chapter
Charles Berton Persons
A. Richardson
Kenneth W. Scott
Philip C. Syracopoulos
Paul S. Wefel

OKLAHOMA
Floyd M. Bartlett
H. H. Jones
Walter W. Kraft

PENNSYLVANIA
Robert Arnold
Guy C. Askey
Michael Baker, Jr.
Robert L. Bennett
Edward A. Croak
David A. Evans
Marcel M. Fertig
William C. Fleck
William R. Garett
William C. Howe, Jr.
Alex Hutchinson
Rolfe Johnson
H. R. Keperling
C. L. Kirk
George W. Kraemer
Louis M. Laushey
L. B. Lennart
Henry C. Lippincott, Jr.
Arthur M. Lockie
Edward P. Lynch
James P. Meglatherty
F. L. Morgenthaler, Jr.
Joseph H. Morrow
F. H. Niece
William E. Pakala
Frank B. Pantano
Norton Henry Reichenbach
Harry S. Reizenstein
Lt. Col. Andrew J. Rominiecki
Paul A. B. Sahm
J. S. Schrecengost
L. W. Strayer
Erich B. Utescher
William E. Weigle
Edward T. Wiesmann
William S. Wilson
Earl L. Wright
William J. Zboyousky

TENNESSEE
Harry N. Howe
O. Clarke Mann

TEXAS
M. J. Aderton
W. H. Balka
Russell C. Bennett
Henry G. Creel, Jr.
George M. Garrett
V. M. Graner
Bayo Hopper
Paul S. Neblett
Elgin B. Robertson, Jr.
A. C. Stults
W. A. Sullender
P. N. Vinther
T. E. Walston. Jr.
T. M. Watson, Jr.
C. J. White
L. M. Wilhoit

VIRGINIA
Fred Reid Ervin

WASHINGTON
L. C. Campbell
Ora A. Dennis
William A. Heineck

WEST VIRGINIA
F. L. Bellegia
G. B. Blackburn
Paul W. Feigley
E. D. Knight
R. C. Shutts

WISCONSIN
Edgar J. Carrington
L. J. Deno

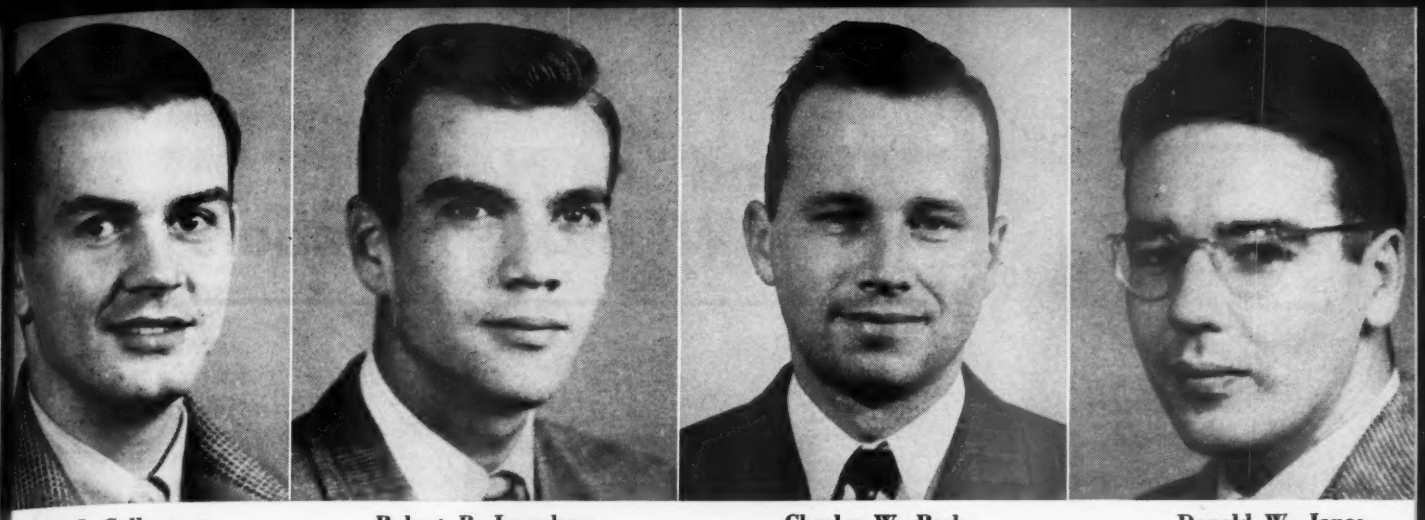
MEMBERS AT LARGE
Crawford K. Dunbar

NSPE Represented At Engineers Meeting In New Brunswick

Mr. Roy E. Argersinger, P.E., Vice-President, Stone and Webster Engineering Corporation, represented the National Society at the 14th Annual Meeting of the Dominion Council of Professional Engineers which was held recently in Saint John, New Brunswick. One or more representatives attended from each provincial association in Canada and the two American organizations represented were the National Society and the National Council of State Boards of Engineering Examiners.

The theme of the conference, as it has been in the past, was uniformity and coordination. There still remains, however. one fundamental point upon which agreement has not yet been reached and that is the matter of "Uniform Registration." The British Columbia Association, alone, is still of the opinion that at least a four-year period of qualifying experience following graduation should be a prerequisite to the granting of full professional status. The remainder of the provincial associations appear to favor the method followed in the province of Quebec, where registration is granted immediately following graduation in the faculty of applied science from an accredited university without provision for any higher grade of membership, dependent upon additional qualifying experience.

One day prior to the meeting of the Dominion Council, representatives of various technical societies in Canada met with the executives of Dominion Council and passed a resolution which read in part: "This meeting of representatives of the Engineering Institute of Canada, the Canadian Institute of Mining and Metallurgy, the Canadian Institute of Forestry, the Chemical Institute of Canada, and the Dominion Council unanimously agrees that the Dominion Council of Associations and Corporations of Professional Engineers in Canada, is the only constituted body to represent professional engineers in Canada when it is necessary to take unified action on a national basis on their behalf, and should be so recognized." If this resolution is accepted by all parties concerned, Canada will have for the first time one duly recognized body which will be able to speak with authority for all professional engineers.



Robert J. Culbertson | Robert B. Ingraham | Charles W. Peck | Donald W. Jones

FROM COLLEGE TO INDUSTRY

Here Is What Four Young General Electric Engineers Say About The Transition From School To Business

By Robert B. Ingraham,

Masters, Carnegie Tech, '49

THE efficiency versus time on the job curve for recently graduated engineers is an exponential. That is, his productivity is low initially and increases at a rate dependent upon his orientation in the job. The well adjusted, common sense, self-confident approach to engineering problems is the one which yields results, and developing such an approach is the primary orientation problem of the young engineer. The engineering supervisor who helps his new men to recognize and solve this problem will see his department profit from the high performance they quickly begin to display.

The best way to achieve this result is by example. In assigning a job, the supervisor can guide the new engineer into a logical, efficient attack. A crystal clear statement of what the specific problem is and what results are expected is essential, and a suggestion as to the method of analysis which appears to offer the most promise is advisable. For instance, if experience has shown that energy methods are likely to be the most effective means of analysis, this should be explained briefly. Doing so will show the younger man that the approach of a more experienced engineer follows the same fundamentals that he himself has learned in his training, but more important, it will lend enormously to his confidence, both in himself and the methods.

Gaining this confidence quickly is important, for the recent graduate on his first engineering assignment often tends to tilt at windmills, allowing himself to be distracted from the problem at hand by doubts and fears which have no basis except in his own lack of confidence. It is easy for the new man to become bogged down in a morass of disorganized ideas, half completed side investigations, and blind alley searches for an "easier way." While some of these ideas and investigations may not be bad in themselves, if they obstruct the progress of the job or clutter the thinking of the engineer, then they cannot be tolerated, and it is the duty of the supervisor to point this out.

The capacity for self expression is an important asset which should be gained during the orientation period. The young engineer is prone to voice his ideas too rapidly and with too little organization to be followed. During most of his college training, he has conversed with those people who were thinking of exactly the same things and in the same way as he was. It takes some time to learn to recognize the need of others to be briefed on the background of the subject being discussed. If the young engineer has anything to say, it is likely that he has been working for weeks or months on the job, and he is therefore on intimate terms with all phases of it. But others are not, and need to be given the pertinent information and necessary background in a clear, organized manner, without an extensive survey of the subject. Again the supervisor can train by setting an example, demonstrating by his own speech the clarity and brevity essential to effective expression.

The more quickly the supervisor by his own actions, shows the young engineer how to orientate himself in his new position, the more quickly will that engineer become an efficient asset to the department.

By Don W. Jones,

U. of California, '49

WHEN the college senior becomes a freshman in industry and joins an organization such as the General Electric Company, he has a three fold orientation problem before him; orientation in the company, orientation on his job, and orientation in the community in which he is living.

As the new engineering employee usually spends his first year or so on the Test Program, his orientation in the company is not difficult. The goal of the Test Program is to give the member the chance to observe personally the various divisions of the company; to see what they do and how they do it. In this phase of his development he is given the chance to form ideas of what he would like his future development to be if he was previously undecided, and to substantiate or modify any preconceived ideas he has concerning his profession.

Although helping in the choice of a permanent job, the Test Program is not particularly helpful in orienting

(*Continued on page* 29)

Around The Nation With Our Members

Howse Speaks To 25th Annual Meeting Of New York State SPE

In a talk before the May 12 meeting of the 25th Annual Convention of the New York SPE at the Hotel Statler in New York, Colonel A. E. Howse, general economic advisor to Defense Mobilization Chief Charles Wilson, said it is time that some policy be worked out with other Nations to make certain that there is a common distribution and use of "minerals and materials essential to modern warfare."

Howse stated further, "if we avoid all-out war, we can carry a defense burden and yet have enough resources left over to increase our basic industrial strength, and to provide a very good standard of living.

"The maximum impact of the defense program will not be felt until the end of this year. The greatest scarcity of materials, and hence the greatest need of controlling the flow and use of these materials, will arise some months from now. Similarly, the greatest pressure on prices and wages—the most serious threat of inflation—lies in the future," Howse continued.

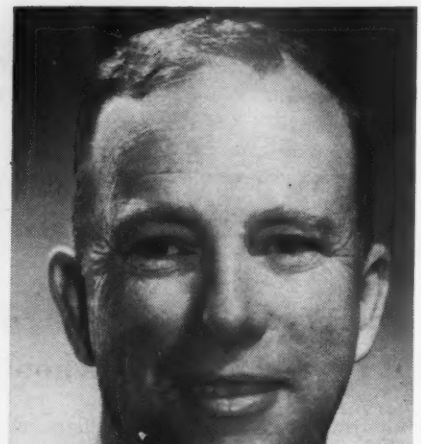
In concluding his talk, Col. Howse made a plea for an end to the "twilight mood among the people today." He pointed out that the major problem before the Nation today is that of public morale, and called for a greater effort on the part of every citizen to understand the defense program.

Colonel Howse spoke at the noon luncheon on May 12, which was a part of New York State Society's Silver Anniversary Convention and Annual Engineering Industries Exposition held at the Hotel Statler in New York on May 10, 11 and 12.

Northern Virginia Chapter Hears Talk On State Power Pool

The Northern Virginia Chapter of the Virginia Society met on April 27 at the Del Ray Restaurant in Alexandria to hear guest speaker J. W. Howard, Vice-President, Virginia Electric & Power Company, discuss, "The Virginia Power Pool."

ELECTED TO CITY COUNCIL



Merrill L. Adams, P.E.

Adams Elected To City Council In Modesto, California

Merrill L. Adams, P. E., president of the Stanislaus Chapter, California Society, was recently elected to the City Council of the city of Modesto, California. He will serve for a two-year period in this office.

The election in which Adams won his office was of a reorganizational nature, designed to effectuate a change to the City Manager form of city government.

Adams' candidacy was sponsored by the Stanislaus Chapter. Chapter members and other interested engineers assisted in his campaign.

Pennsylvania Society Holds Sixteenth Annual Convention

The 16th Annual Convention of the Pennsylvania Society was held at the Americus Hotel in Allentown on May 18 and 19.

The opening day of the convention featured tours of the Bethlehem Steel Company, the Universal Atlas Cement Company at Northampton, and the R. K. Laros Silk Company at Bethlehem. A separate tour for the ladies was held, including a visit to Central Moravian Church and Museum; Moravian Seminary and the Moravian College for Women, all in Bethlehem.

The President's Dinner was held that evening in the Americus Ballroom. James W. Pastorius, President, Lehigh Valley Chapter, PSPE, welcomed the delegates to Allentown, and PSPE President Robert A. Blackburn welcomed the members to the state convention. The principal address of the evening was given by the Honorable Donald V. Hock, Mayor of Allentown.

On the following day, the Annual Business Meeting was held in addition to a meeting of the newly-elected Board of Directors.

The Convention was concluded with a banquet in the Americus Ballroom. The banquet featured group singing, dinner music and an address by Mrs. Van Dora Fitch, Directress of the Bethlehem High School on "Liberty Twelve Plus." NSPE President S. L. Stolte was the principal speaker of the evening, and speeches were also given by retiring PSPE President Robert A. Blackburn and incoming President J. D. Carpenter.

Fairman Speaks To District Of Columbia Society

The District of Columbia Society met on May 28 at the Smorgasbord Restaurant in Washington to hear Mr. James H. Fairman, Vice President, Consolidated Edison of New York, discuss "Unity in the Engineering Profession."

Davis Of NYSSPE Named President Of Stevens Institute

Dr. Jess Harrison Davis, P. E., member of the New York State Society, has been elected to succeed Dr. Harvey Nathaniel Davis as president of the Stevens Institute of Technology, Hoboken, New Jersey. The new Stevens president, who is now serving as president of Clarkson College of Technology at Potsdam, New York, is the fourth in the 81-year history of Stevens and will assume his duties on September 1, 1951.

The new president has had a varied and distinguished career as an engineering educator and industrial consultant. He was graduated from Ohio State with a degree in science in 1928 and received his Master's degree there in 1933. In 1949 he received his doctorate in science from St. Lawrence University.

His industrial career has included service with Ohio Bell Telephone Company, Alabama Power Company, American Locomotive Company, and Foster Wheeler Corporation. He has served as consulting engineer for Hydraulic Controls, Inc., New York Air Brake Company, D. M. McBean, and De Wolf Furnace Corporation. He is presently on the board of directors of the Niagara Mohawk Power Corporation.

The career of Dr. Jess Davis as an educator started in 1929 when he went to Clarkson College as an instructor in mechanical engineering. He was made president in 1948.

Dr. Davis is a licensed engineer in New York and Kentucky. His professional societies include the American Society of Mechanical Engineers, the Engineering College Administrative Council, the American Society for Engineering Education, and the New York State Society of Professional Engineers.

Central Illinois Chapter Holds "Boys' Night" Meeting

The Central Illinois Chapter of the ISPE held a "Boys' Night" meeting on April 26 at the Staley Club House in Decatur. The meeting was held to encourage and enlighten young men who are interested in engineering.

Professor H. L. Walker, Head of the Metallurgical Engineering Department, University of Illinois, spoke on "Careers in Engineering."

CONNECTICUT ANNUAL MEETING

Shown above are photographs taken at the Annual Meeting of the Connecticut SPE which was held recently in Bridgeport. During the banquet which concluded the convention, the Honorable Masper McLevy, Mayor of Bridgeport, addressed the group and complimented them upon the civic good performed by the Society. Top Left: left to right, seated: Louis Lichenstein, Secretary, CSPE; L. Morton Reed, President, CSPE; Col. James D. Skinner, National Director, CSPE. Standing, Edwin S. Osteyee, Treasurer, CSPE; Max Davis; Edward J. Nesbitt. Top Right: left to right: Mrs. J. Gerald Phelan; Mr. Gustave Welter; Mrs. Clarence N. Wiley; Mr. Edwin S. Osteyee; Mrs. Gustave Welter; Mr. John L. Harkness; Mrs. Edwin S. Osteyee; Mrs. John L. Harkness. Standing: Mr. J. Gerald Phelan; Mr. Clarence N. Wiley. Bottom Left: left to right: Mrs. John Shallenberger; Col. James D. Skinner; William P. Little; Mrs. George B. Chesley; Mr. George B. Chesley; Mrs. Edward W. Borggrafe; Mr. John Shallenberger; Mr. Edward W. Borggrafe. Bottom Right: Committee in charge of meeting: left to right, seated: Stewart Sebring; Max Davis; Erwin J. Panish (Chairman). Standing, Edward J. Nesbitt; A. William Coronato.

PHILADELPHIA GAVEL PRESENTATION

The above photograph was taken during the Annual Meeting of the Philadelphia Chapter, PSPE, which was held on May 3. Past President Thomas E. Bruder is shown as he presents a commemorative gavel to retiring President William A. Toperzer.

TEXAS SPE'S BOARD OF DIRECTORS MEET

Shown above are members of the Texas Society's Executive Board of Directors who met on April 20. This was the first Board of Directors' Meeting of the year, and the first time that the Executive Board members were State Directors elected by the Chapters to represent them. First Row, left to right: J. R. Laurence; Henry Hutchings; Gibs Dyer; J. Neills Thompson; Marvin C. Nichols, President TSPE; T. C. Forrest; W. W. McClendon; C. A. Chipley; Joe J. Rady; S. B. Schapiro. Second Row: R. E. Wisenbacker; Tom Melody; P. M. Ferguson; Joe B. Dannebaum; R. S. Guinn; R. M. Rugeley; A. D. Hutchison; Noah E. Hull; John P. Foster; R. B. Cruise; J. L. Dickson; John J. Ledbetter; Harry S. Phillips; William E. Neill. Third Row: Elgin B. Robertson; Donald W. Kugler; Percy V. Pennybacker; George C. Brady; E. E. Pittman; Fred C. Brandt; W. L. Ducker; W. R. Woolrich; H. L. Roberts; M. C. Hughes.

Tulsa Chapter Hears Recent Address By University President

Members of the Tulsa Chapter, Oklahoma Society, held a meeting at Michaelis Cafeteria in Tulsa on April 26. The speaker of the evening was Dr. C. I. Pontius, President of Tulsa University, who commended the engineers for their interest in public affairs and centered his talk around the responsibilities of citizens to give concern and vigilant attention to the problems of maintaining our democratic form of government.

During the business session a resolution was passed pledging the support of the Chapter to the Civil Defense program being set up in Tulsa County under the direction of L. L. Dresser, P. E., member of the Tulsa Chapter and president-elect of the NSPE.

NEW AUGUSTA CHAPTER OFFICERS

Shown above are the newly-elected officers of the Augusta Chapter of the Georgia Society. They are, left to right, front row: Francis E. Cook, P.E., President; Josef C. Patchin, P.E., Vice-President. Back row: T. E. Wilson, P.E., Treasurer, E. E. Pund, P.E., State Director; A. L. Matthews, Sr., P.E., Secretary.

Ohio's Cleveland Chapter Holds 15th Annual Meeting

The Cleveland Chapter of the Ohio Society met recently for its Fifteenth Annual Meeting at the Hotel Carter in Cleveland to hear Mr. Carl Byers speak on "He Who Laughs—Lasts."

Retiring President Paul Harlamert, P. E., presented service awards to Mr. Bruce Baty, P. E., and Mr. H. J. Stroebel, P. E. Baty was recognized for his chairmanship of the program committee, and Stroebel received the award for his work with the Engineers Employment Committee, which helped to organize a functional internal group of practicing engineers within the Chapter.

Lefebvre Of Arizona To Assume New Duties As Phoenix Postmaster

W. C. Lefebvre, P. E., member of the Arizona Society, has been appointed to serve as Postmaster for the city of Phoenix, Arizona. Lefebvre will resign his position as State Highway Engineer to accept his new post.

During his term as State Highway Engineer, Lefebvre has raised the position of the engineer in state work by insisting that the engineers serving under him be registered. In addition, he is working on a program for E-I-T training in the highway department whereby the young engineers will receive experience in all departments before specializing.

Central Arizona Chapter Holds Panel Discussion On Plans For Unity

The Central Arizona Chapter of ASPE held a meeting in the Conference Room of Phoenix College on April 16th. Highlight of the meeting was a discussion forum on the proposed four plans of unity for the engineering profession.

James E. Hastian, P. E., acted as moderator for the panel, and Engineers Walter A. Burg, Paul F. Glendening, Neil R. McLeod and Hanen H. Williams acted as panel members. Each member of the panel discussed one of the plans as reported by the committee of fifteen engineering societies, and was then free to question other members concerning the plan they presented.

Questions and discussion were then called for from the floor. At the end of an hour and a half of discussion from the floor, a vote was called for on the plans and a unanimous vote was cast for Plan "D," or NSPE as now organized.

Prominent Member Of Massachusetts SPE Assumes Toledo Post

Mr. Alfred Abboud, member of the Massachusetts Society, who has served as chairman of the Society's publicity and membership committees, has been appointed manager of the chemical and refinery division of Kaighlin & Hughes, Inc., Toledo, Ohio, it was announced recently.

A lifelong resident of Boston, Mr. Abboud will be remembered for the excellent work he did as Massachusetts Publicity Chairman throughout the NSPE Annual Meeting in Boston last June.

DRESSER JOINS TAU BETA PI

L. L. Dresser, P.E. (left), is shown as he received the Tau Beta Pi key from Dean W. H. Carson, P.E., while Tom Coleman, President of Tau Beta Pi's Alpha Chapter at the University of Oklahoma, awaits his turn to give Mr. Dresser an enlarged "Bent." This presentation was a part of recognition accorded Mr. Dresser on May 2 at the University of Oklahoma in Norman when the Alpha Chapter of Tau Beta Pi bestowed membership in their organization upon Mr. Dresser.

L. L. Dresser Becomes Tau Beta Pi Member In Oklahoma Recently

On May 2 the Alpha Chapter of Tau Beta Pi, University of Oklahoma, Norman, Oklahoma, bestowed upon Mr. L. L. Dresser membership in Tau Beta Pi national engineering fraternity. This high engineering honor came to Mr. Dresser because of his fine record as a professional engineer, his progressive leadership in engineering organizations and civic affairs, and the outstanding academic record he made while an undergraduate in college. During the past three years he has addressed the engineering students on the occasion of "Career Week." Mr. Dresser is president-elect of the National Society.

The special initiation of Mr. Dresser was performed in the office of W. H. Carson, Dean of the College of Engineering, following the initiation of thirty-eight undergraduates. After the initiation ceremonies, a banquet honoring initiates and sponsored jointly by Tau Beta Pi and Sigma Tau was held. Mr. Dresser made the principal address. Dean Carson presented the keys during the banquet.

OHIO CHAPTER HOLDS DINNER-DANCE

Shown above is the group that attended a dinner-dance given by the Auxiliary of the Mahoning Valley Chapter of the Ohio Society on April 28 at the Club 422 in Warren, Ohio.

Metropolitan Chapter Of Massachusetts SPE Hears Museum Address

The Metropolitan Chapter of the Massachusetts Society met on April 4 at Boston's new Museum of Science, where Museum Director, Bradford Washburn, nationally known explorer, scientist, lecturer and author, was the speaker. Mr. Washburn spoke on the history of the old Museum, and outlined plans for the future development of Science Park and the Museum.

Following Mr. Washburn's address, the members toured the completed east wing and examined exhibits of all types.

Tri-Valley Chapter Of Kansas Receives Charter Recently

The Tri-Valley Chapter of the Kansas Society met on April 27 at the Hotel Beck in Stockton. The speaker of the evening was Professor Winton Sheffer of the Rooks County High School who spoke on "English, Past and Present."

In addition to Mr. Sheffer's address, KSPE President Walter Johnson formally presented the Chapter with its charter.

Steinman Receives Honors Recently At Columbia University

Dr. David B. Steinman, P. E., member of the New York State SPE, was recently awarded membership in the Society of Sigma Xi at the annual meeting of the Columbia University Chapter, in recognition of his scientific attainments and contributions.

Dr. Steinman was further honored by being selected by the Board of the Columbia Engineering School Alumni Association to receive the Egleston Medal for Distinguished Engineering Achievement for 1951. The Egleston Medal, which is the highest form of award conferred by the Alumni for outstanding professional achievement, was presented to Dr. Steinman on May 3 at the Columbia University Club in New York City.

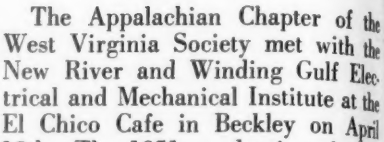
Milwaukee Chapter Holds Forum On Four Unity Plans

On May 8 the Milwaukee Chapter of the Wisconsin Society met at the ESM Building in Milwaukee to hear a forum discussion on "Four Plans for Unity of the Engineering Profession." WSPE National Director Arthur G. Behling was forum chairman.

Appalachian Chapter Of West Virginia Meets In Beckley

The Appalachian Chapter of the West Virginia Society met with the New River and Winding Gulf Electrical and Mechanical Institute at the El Chico Cafe in Beckley on April 18th. The 1951 graduating class of mining engineers from West Virginia University was the guest of both organizations at this meeting.

J. E. Howard, P. E., Appalachian Chapter member, was the principal speaker for the event, and his topic was, "The Engineer's Obligation to Society, Profession and Family."



WELDING CONNECTORS

Saxe System Welded Connection Units for welded assembly

Saxe Units place in position and securely hold together structural parts to be welded.

As used in many welded structures they *eliminate all hole punching,* producing an economical, rigid, safe and quickly erected structural frame.

Write for 58 pg. Manual containing full engineering design information for welded structures.

J. H. WILLIAMS & COMPANY
Buffalo 7, New York

Canadian Representatives
G. D. PETERS CO., Montreal 2, Canada

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS FOUNDED 1934

President, SIDNEY L. STOLTE, P.E.
Bettenburg, Townsend and Stolte
1437 Marshall Ave.
St. Paul 4, Minnesota

Vice-President, L. L. DRESSER, P.E.
President, Dresser Engineering Co.
P. O. Box 2518
Tulsa 1, Oklahoma

Vice-President, CHERRY L. EMERSON, P.E.
Vice President,
Georgia Institute of Technology
Atlanta, Ga.

Vice-President, JOHN D. COLEMAN, P.E.
Supervisor, Material Utilization
Work Manager's Staff
Frigidaire Division
General Motors Corporation
2520 Elsmere Street
Dayton, Ohio

Vice-President, C. G. ROUSH, P.E.
Manager, Westinghouse Electric Corp
101 W. 11th St.
Kansas City, Missouri

Vice-President, GEORGE J. NICASTRO, P.E.
Combustion Engineering—Superheater, Inc.
200 Madison Avenue,
New York, N. Y.

Vice-President, EARL N. HOLM, P.E.
Valuation Engineer, Sacramento Municipal Utility District
4648 Sunset Drive
Sacramento, California

Treasurer, RUSSELL B. ALLEN, P.E.
Professor, Civil Engineering, University of Maryland
4610 Hartwick Road
College Park, Md.

Executive Offices
1121 Fifteenth Street, N.W.
Washington, 5, D. C.

Executive Director, PAUL H. ROBBINS, P.E.

KENNEDY-RIEGGER DRILLING CO., Inc.

Diamond Drill & Core Borings

TEST BORINGS

5418 Post Road — New York City

Telephone KI 9-8458

AEROFIN

CORPORATION

Syracuse — New York

ADVERTISING INFORMATION . . .

For information concerning advertising, please write to:

Business Manager
THE AMERICAN ENGINEER
1121 15th Street, N. W.
Washington 5, D. C.

College to Industry

(*Continued from page* 23)

the new employee when he has obtained it. Now he finds working conditions entirely different. Rather than being assigned a routine procedure that he may have become accustomed to on "test" the work will call for initiative and original thinking. He will perhaps be doing things that have not been done before; or at least not by him. His college training will of course be necessary and important to him; however, he may find it difficult to adapt the traditional problems he has done in college to his everyday work. He must realize that a diploma is not a permit to stop learning.

In the transition from the university to industry the emphasis has suddenly shifted. Now the important part of a problem is its solution and not the method of solving it. The young engineer will probably be carearily a student, he must realize that he is being employed for the results he can obtain. Excuses, valid or otherwise, are to be avoided.

When he starts his first job the young engineer will probably be carefully supervised, and will have his work laid out for him. However, as time passes he must realize that he cannot expect all of his problems to be assigned to him, but he must look for new ones. Also he must not allow himself to get buried under one particular small job. It is for his benefit as well as his employer's to have a good understanding of the overall operation on which he is working. Only in this way can he make possible his future growth and development.

Since only about a half of a man's time is spent at work, orientation in the community is not to be neglected. If a person is not happy in his off time hours, he certainly cannot do his best at work. The G.E. engineer is somewhat fortunate in this respect due to the non-local character of the engineering staff of the company. He does not find himself trying to break into a tight clique in the community. The extent to which he participates in community and social activities is a matter of personal choice and inclination; however, there are many organizations that may be joined that will lead to friendships and a feeling of acceptance, and it is these two things that any phase of orientation has as a goal.

By Charles W. Peck,

U. of Idaho, '49

YOU can't hire an "engineer" right out of college. You employ an engineering student, a college student. Yes, if you give him time, he will become an engineer, but can you not help him to make the change? Can't you shorten the time, make him a better, more productive engineer?

Sure you can. A realization of the changes and problems facing the young engineer and a little attention to properly orienting him in his job will more quickly make him the productive employee you want.

First of all, know that the University has given him a good understanding of several branches of science and mathematics, but it did not foresee that he would someday work for you. There are some things, not written in text books, that you, the professional engineer or employer, want him to know and use, such things as your trade jargon, your favorite design and operating practices, how to work with your other employees, and how to use what he knows.

Engineers have their own jargon. They use words with meanings which are not used or known by the public. Engineers in a particular type of work have their own special words. The experienced engineer can help the new one to catch on by carefully defining and explaining your special abbreviations and names. Let him know your language at the start.

Principles last forever; but special rules pass away with the things and conditions to which they refer.
—Seeley

Now put yourself in the new man's shoes and picture the confusing situation he sees in your paper work and "channels." What form should he use this time; how many copies; to whom do they go? Now you see how much he needs a reliable guide, an experienced engineer to instruct him. You can save "paid time" by meeting this problem of the young engineer by a little attention to small details.

There are some other problems, of a professional kind, which you can help the college graduate to solve. As an engineer, he must learn to take responsibility for his work. In college, the problem was stated. Now he must see the situation without a formal statement. In college, a right solution and a wrong answer was worth part credit. Now the right answer is all that counts. The young engineer will have to learn to do a professional job and to be responsible for his answers. Your assistance is valuable.

As an engineer, he will have to work with the draftsmen, the shopmen and even the typists. Chances are that he will be able to work with them all right. But the unwritten laws of procedure and conduct which you have learned can help him avoid the pitfalls.

Lastly, the young engineer faces the problem of keeping what education he has and increasing it. You are familiar with the so-called "post college slump." The graduate takes on his new job enthusiastically, glad to be through with the books. After a few months of experience he begins to realize that he could use some more engineering knowledge in his work. About the time he begins to feel that he really needs to know more, he finds that he is forgetting what he learned in college. This is the slump. It is a period of readjustment during which he sets his pattern for future self-education. And it is a good opportunity for you, the professional engineer, to steer your younger associate into better habits of study and self-education. Help him to use what he knows and to learn what more he needs to know.

Now it all boils down to this: you, the experienced professional engineer, can help the young engineer to orient himself in industry. You can do it better than anyone else, for no one else has the experience you possess. The old guild system of craft master and apprentice worked well. Doctors and lawyers use it today. Should not the engineers also use it? You must help to orient the new engineer in industry.

By Robert J. Culbertson,

Kansas State College, '49

BITTER experience has shown that the young engineering college graduate is rarely able to step into an engineering job and perform satisfactorily.

This brings up the question: Why not? Hasn't he been through four gruelling years preparing himself for that job?

The answers to these questions lie in the fact that very few engineering graduates know much, if anything, about actual engineering work. They have spent the time in college studying the mathematical and physical fundamentals which are used in the engineering work, but the actual features and processes of the jobs are, for the most part, unknown.

Therefore, due to this lack of knowledge, the young engineer faces many problems when starting on his chosen career.

The first of these problems that is faced is: what kind of work do I wish to enter?

The average young college graduate

(*Continued on page* 34)

What They're Saying

(*Continued from page* 19)

limited amount of the student's time, regardless of how great for good their influence may be. Our faculties must be composed of, in addition to men of outstanding abilities, men of such broad culture that they contribute the largest share in the development of the well-balanced mind in those young men who, because of the dependence of the world on their technical ability are to influence so largely the future of generations to come.

Today the products of engineering colleges scatter themselves into every field that influences our national economy and the maintenance of production and employment is one of their major responsibilities. They cannot be segregated from the rest. They must mingle with them and their attitudes and their philosophies will exert greater and ever greater influences on our national economy.

Let us not then be so greatly concerned that we pack into the curriculum of the young engineer courses and hours in this or that so-called social-humanistic study, but that we so conduct our classes and courses that the full significance of our great culture will develop men who possess in full measure those attributes of well balanced minds that will enable them to live intelligently in their ever-expanding environment.

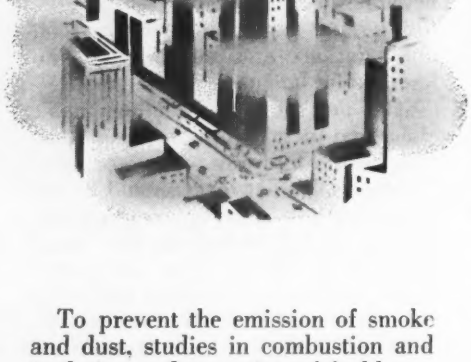
FORD L. WILKINSON, *President,*
Rose Polytechnic Institute.
Journal of Engineering Education, March, 1951.

PREVENTING AIR POLLUTION IN THE UNITED STATES

After America had passed through the adoption-of-an-ordinance stage in air pollution prevention, it became evident that the work was only begun, and that an ordinance was little more than an expression of desire that gave government personnel an authoritative position. It began to be realized that the problem was a big, even a tremendous one, involving legal, scientific, economic and particularly human aspects.

As the problem became better understood, it was necessary to change the ordinance from time to time. Struggling with equipment already installed, the idea developed that all new equipment should be built properly to protect the future and inherently assure that, as the older equipment was abandoned, conditions would improve. With the authority to decide final design details, the question as to what those properly should be immediately arose. Over-all costs of equipment were affected, as well as competitive positions of different types of equipment. After some 40 years, there is no common standard of equipment dimensions, there being great variations in city requirements for the same type of equipment under the same conditions of operation.

In attempting to abate smoke, particularly from nonanthracite coal, there has arisen much controversy and different decisions over the kind of coal that would be permitted for use. At one extreme is the statement that the only way to assure no smoke is to use a fuel that cannot smoke under any conditions. At the other extreme is the statement that anyone should be permitted to use any fuel he wishes, since he commits no wrong except when he makes smoke. Various volatile limitations for coal have been used in a number of ordinances aimed chiefly at abating smoke from hand-fired equipment. The controversy continues, but general progress should in time reach a settlement that all consider reasonable.



To prevent the emission of smoke and dust, studies in combustion and in design and operation of fuel-burning equipment have been made by numberless individuals, manufacturers, and organizations of many types —industrial, technical and governmental. Small, magazine-type, smokeless, hand-fired furnaces for bituminous coal, extensive use of overfire air on large furnaces and locomotives, greatly improved smoke and dust collectors, and the cyclone furnace, all are examples of relatively recent progress. Most of the studies made in the country on preventing emission of sulphurous contamination from fuel-burning equipment have been made by the University of Illinois.

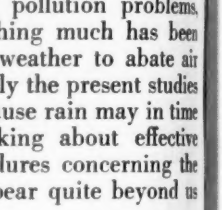
Although the only place to prevent air contaminants from reaching the air is at their source, much related scientific study and many investigations have been made as to what and how much is in the air. Much work is yet to be done on methods of identifying and determining accurately the amounts of many contaminants in air. Universally accepted standards as to sampling and analyzing do not exist.

From a practical standpoint, there is no "pure" air; a reasonably basic standard of air as found in farm or forest areas has various natural contaminants of gases and dusts. The problem has been worked upon with the idea of establishing what maximum quantity of each of the many contaminants should be permitted. Such values have not been established satisfactorily.

Scientific study for many years has been made on the relationships and effects of weather conditions on air pollution. Of the various meterological effects, that of wind velocity was most easily understood generally. There was evolved a new word "smog"—a combination of smoke and fog. Relatively recently, there has been appreciably increased understanding by the public of the phenomenon called "temperature inversion." Such knowledge is helpful in working on air pollution problems, but to date nothing much has been done about the weather to abate air pollution. Possibly the present studies being made to cause rain may in time lead us to thinking about effective operating procedures concerning the weather that appear quite beyond us at present.

After about a century of city air-pollution problems in this country, half of which have included considerable activity, the question naturally arises as to why better progress has not been made. Similar problems have been solved essentially in so far

(*Continued on page* 34)



Georgia Society of Professional Engineers and Tennessee Society of Professional Engineers—Joint Summer Meeting. June 15 and 16. Lookout Mountain, Tennessee.

National Society of Professional Engineers—Annual Meeting. June 13, 14, 15 and 16. Hotel Nicollet, Minneapolis, Minnesota.

West Virginia Society of Professional Engineers—Annual Meeting. August 24 and 25. White Sulphur Springs.

Sporn

(*Continued from page 8*)

its nuclear physics or the complex chemistry of its separation, and even more of the rhapsodic worship it has inspired, plutonium, U235, or U233, if any of them find use in production of energy, will find application to replace conventional fuels. True, if we can only bring about the solutions of a number of very difficult engineering and economic problems, they may become most superior fuels. Highly concentrated — one pound being capable of developing heat equivalent to that of fifteen hundred tons of bituminous coal—such fuel would be easily transportable. It thus holds out hope of becoming a universally available fuel; and, perhaps, a more economical fuel than coal, oil, or gas. The development of nuclear fuel may, therefore, bring lower-cost heat energy and particularly lower costs of generation of electric energy.

Is that important? Yes, very. But only to the extent that lower-cost fuel is an important item in the cost of electric energy. That means, therefore, that it would be very important in such operations as producing aluminum, magnesium, chlorine or titanium, and of almost no direct importance in ordinary industrial operations or in household use. But this admitted importance is hardly such as to warrant an assignment to the development of atomic power of a value as cosmic as those cited.

Admittedly, atomic energy lends itself to a certain amount of etherealization. In matters more familiar we should logically be more stable. But is there anything less realistic than the fetishism with which many have surrounded hydro-electric power and which is summed up in the remark of an otherwise responsible economist who asserts that steam-electric power is aristocratic while hydro-electric power is democratic!

The remarks of scientists and social scientists to which I have been referring suggest a rather serious lack of comprehension on their part of the material world of today. One would expect that the very particulars in which their understanding is most inadequate could best be supplied by the engineer. After all, he is the one who developed and applied the machine technology which is the Western world's most conspicuous characteristic. One wonders why he does not have a larger share in providing the leadership which that world so desperately needs. Actually engineers are hardly represented at all in leading roles in public affairs.

The Cabinet of the most powerful democratic nation does not include a single engineer. In the 81st Congress of the United States there were only 7 engineers out of 432 members, while the legal profession, for example, furnished 259 men. There were only 5 engineers in the Senate, as contrasted with 66 lawyers. Or consider the sobering fact that among the commissioners of the three perhaps most important administrative bodies in the executive branch of the government—the Securities and Exchange Commission, the Federal Power Commission and the Atomic Energy Commission—there is only 1 engineer, who serves on the Atomic Energy Commission.

I DO not pretend to know what accounts for the engineer's aloofness from public activities. Perhaps it is simply that the environment of politics—in the best sense of the term—is too alien an atmosphere for one who has been taught to believe that the world is composed of solid facts, that its variables can be balanced by contingency factors and that any compromise is questionable. Whatever the ultimate cause, it seems to me that engineering is not widely represented in public affairs because engineers, consciously or unconsciously, have elected not to make the effort necessary to become involved. This condition ought to be corrected if, as I believe, the engineer has been and is the instrument through which the present second industrial revolution is being accomplished.

It is one of the paradoxes of our time that modern society needs to fear only the Educated Man. The primitive peoples of the world constitute no menace. The most serious crimes against civilization can be committed only by the educated.

—Associate Justice Jackson

Broadly speaking, responsibility for this inertia of engineers in public affairs, rests with the present generation of practising engineers. In saying this I mean that in the final analysis it is they who must be held responsible for the condition of our technical schools. They are the ones who propagate the new generation, and they propagate in their own image. What are they setting up as their image? In general, the definitions of engineering adopted by engineers stress the technical aspects of the field, and frequently along quite a narrow beam. The engineer thus restricts himself to the cramped role of technician. He does not even allow himself the breadth of field that goes with the concept of technologist.

Where does this narrowness of view and aim start? At least as far back as the beginning of the future engineer's technical education. It may well go farther back and have its beginnings in the preparatory or high school. It may very well be that here is molded in almost permanent form the ideas that engineering consists solely of the application of science to the design, construction and operation of machines and equipment or to the carrying on of process "for the aid and convenience of men"; that those studies and interests which contribute directly to these stated aims are proper and should be encouraged; and that other studies and interests are not only divagational but are somehow soft and inconsistent with such an obviously manly profession as engineering.

If that is so, then as far back as the upper levels of our preparatory schools it is necessary to introduce curricular changes which will emphasize the potential breadth of engineering and the engineer's role, and stress the socio-economic usefulness and importance of technologists in modern society. The future engineer must be made to see not only that he will join a profession of technologists but also that he should become an influential member of the much broader group who together are the architects of social progress, a circumstance that gives them boundless opportunities.

EQUALLY important, we must make it clear that the very magnitude of the potentialities imposes heavy responsibilities on those who as educators undertake the task of molding and guiding the development of our future engineers. For it is the teachers in the preparatory schools who can best plant the idea that the role of the engineer is fully consistent with knowledge and understanding of the social sciences and the arts. As a matter of fact, I think the case warrants much stronger statement. A thorough grounding in the humanistic disciplines is indispensable to the engineer's full development and to his assuming any real leadership in the world of today.

The place to begin on this new road is the secondary school, but that is only spadework. The real work must be done in the engineering college or technological institute. And this will be impossible unless we

recognize squarely that by and large our engineering education has tended altogether too heavily toward the vocational. The curricula in the schools that propose to train engineers in the fullest sense must be broadened; more time should be devoted to social sciences and humanities. This may mean a reduction in time devoted to the specific engineering subjects—the subjects which are supposed to impart practical know-how. But, if a choice has to be made between this know-how and the acquisition of broadly based knowledge of society, past and present, the answer should not be difficult. Not know-how, but an understanding of the process for acquiring know-how and how to use know-how is what we have to aim at.

No great thing is created suddenly, any more than a bunch of grapes or a fig. If you tell me that you desire a fig, I answer that there must be time. Let it first blossom, then bear fruit, then ripen.

—Epictetus

The last, it seems to me, is of particular importance. There is a general feeling, certainly prevalent in the United States, that we have in the past absorbed too many facts and thought about them too little: this applies with particular pointedness to engineers and engineering education. A great Polish scholar and philosopher who lived and taught among us for many years first pointed out some 30 years ago that the essential characteristic that differentiates man from plant and animal life was that, whereas plants possess chemistry binding abilities and animals space binding qualities, man is the only creature on earth who possesses the unique capacity to accumulate knowledge. The engineer trained in science and engineering is apt to over-idealize this time binding characteristic of his profession. For there also exists in human experience much knowledge that is non-cumulative in the sense that the engineer's analytical methods and procedures, equations, formulae and tables are completely cumulative. The knowledge relating to literature, philosophy, music and art is of a quite different and infinitely less palpable kind. The broadening experience of these, no less than strictly technical study, is needed by engineers who want to assume a part in leadership in the world of tomorrow.

A significant step in expanding the scope of engineering education has been taken within the past year. Several of our leading universities had already demonstrated that the integration of technical schools within the university community, and the resultant close association between technology and the liberal arts, can do much to increase the effectiveness and vitality of all concerned. The new step is an extension of this idea. For the first time a technological university has organized a truly strong program in the liberal arts. I refer to the new School of Humanities and Social Studies at the Massachusetts Institute of Technology, one of the world's great institutions of engineering education. This school was not established with the idea of providing another institution where men could be trained primarily in the liberal arts. The idea was to enable the Institute to broaden and deepen its activities in these fields and to educate men to be effective citizens as well as effective professional engineers—to be, in other words, technologists and engineers and not mere technicians.

THE mechanism for gaining this objective need not necessarily be the same in other engineering institutions, but the basic idea needs to be developed and implemented by many more schools. I haven't any doubt that only after this is done will we succeed in establishing a satisfactorily broad foundation for training the better rounded engineers that the future demands.

Nor can any program for enlarging the scope and vision of our engineers stop with the schools. The present generation of mature and successful engineers has a responsibility in this process also. This involves the closer integration of the engineers with one another and with the professional schools and colleges: each with his own alma mater, most naturally, but also with the other institutions that his work and practice naturally bring him in contact with. So many engineers of outstanding ability, upon reaching maturity, rush headlong along a road that will keep them as far away from engineering as possible. In doing that, they separate themselves from engineering and engineers, and also from their problems and the institutions where these problems are being worked on. While many of the engineers in this group would be emphatic in their denials of any such intent, they nevertheless generally imply that the profession and practice of engineering is not quite a satisfying occupation, although it may be an excellent stepping stone to some "higher" or at least more "responsible" form of activity.

This, it seems to me, is a great pity. Because I believe that out of such judgment and action the engineers who have advanced in their profession not only lose an opportunity for spiritual expansion and satisfaction, but—and this is when the common welfare suffers—they fail to give the younger generation of engineers what they might otherwise be able to transmit of their own growth and development.

SUCH men cannot only teach and contribute by precept and example but also have an opportunity to propagate one of the most important ideas that needs to be implanted in the mind of the young engineers—the dynamism of engineering. The tendency toward overawing the young engineer with the vast amount of accumulated knowledge that he has to acquire in turn tends to sterilize his creative faculties before they have had an opportunity to blossom. It is the older generation of engineers who can furnish out of their experience the necessary distillate to avoid such deadly thinking and to establish the vitally important truth that what an engineer learns in his years at school and in his early years of practice about what others have done before him is but a prelude to what can be done and what is open and possible for him to do as he matures in his profession.

It is the engineer educated in the basic sciences, the humanities and the social sciences and thoroughly grounded in engineering principles and ideas, who will find opportunities for constructive leadership. The engineer who is equipped initially with enough tools to begin working in his profession but who more and more relies on new ones that he acquires as he goes along—he is the engineer who can stay buoyed up by the spirit of growth and progress and who can imbue others with this spirit. It is this engineer, with his knowledge of the machines that characterize and make possible the world of today, who can not only help create the world of tomorrow but who, taking his proper place in public affairs, will also help run it for the physical benefit and spiritual advancement of man.

Give us free vision that we may know where to stand and what to stand for, because unless we stand for something, we shall fall for anything.

—Peter Marshall,
Late Chaplain of the U. S. Senate

Member State Societies' Officers and Directors

Arizona

Pres., Carll C. Huskison, 1818 N. Laurel Ave., Phoenix.
Sec-Treas., Americo Lazzari, 4323 N. 14th Ave., Phoenix.
Nat. Dir., Earle V. Miller, 1025 W. Monte Vista Road, Phoenix.

Arkansas

Pres., Frank Beckman, 510 N. 22nd St., Fort Smith.
Sec.-Treas., Charles E. Hooker, 1315 Battery St., Little Rock.
Nat. Dir., R. J. Rhinehart, 411 Main St., Pine Bluff.

California

Pres., Kenneth D. Harrington, 10343 E. Schmidt Road, El Monte.
Exec. Sec., Arthur C. Bullen, Jr., 1070 Los Flores Drive, Del Rosa.
Nat. Dir., Oliver Deatsch, 302 J St., Modesto.

Colorado

Pres., Loren Adams, 674 Clermont St., Denver.
Exec. Sec., Thurman Rundlett, P. O. Box 2522, Denver.
Nat. Dir., Alfred J. Ryan, 1340 Glenarm Place, Denver.

Connecticut

Pres., L. Morton Reed, 42 Florence Ave., Devon.
Sec., Louis Lichtenstein, 23 Elder St., Milford.
Nat. Dir., James D. Skinner, 460 Old Oaks Road, Bridgeport.

Delaware

Pres., John L. Bahr, Box 1848, Wilmington.
Sec., Henry S. Mauk, 116 Cleveland Ave., McDaniel Hts., Wilmington.
Nat. Dir., Thomas B. Evans, Box 1848, Wilmington.

District of Columbia

Pres., Henry W. Clark, 2853 Ontario Road, N. W., Washington.
Sec., Clifford J. Colbert, P. O. Box 585, Benjamin Franklin Station, Washington.
Nat. Dir., Herman F. Lame, 4000 Cathedral Ave., N. W., Washington.

Florida

Pres., E. A. Anderson, 1301 Court House, Miami 32.
Sec.-Treas., John E. Kiker, 210 Eng. & Ind. Bldg., Univ. of Florida, Gainesville.
Nat. Dir., John F. Reynolds, P. O. Box 4442, Jacksonville.

Georgia

Pres., Charles E. Layton, P. O. Box 720, Albany.
Sec., George M. Normandy, Box 520, Atlanta.
Nat. Dirs., John W. Lovell, 203 Alexander St., Marietta; Ray L. Sweigert, Georgia Institute of Technology, Atlanta.

Idaho

Pres., Allen S. Janssen, University of Idaho, Moscow.
Sec., Karsten T. Bronken, 619 Grove St., Boise.
Nat. Dir., Orland C. Mayer, 1220 Idaho St., Boise.

Illinois

Pres., V. E. Gunlock, 525 Arlington Place, Chicago 14.
Sec.-Treas., H. E. Babbitt, 204 Engrg. Hall, Urbana.
Asst. Sec., P. E. Roberts, 631 E. Green St., Champaign.
Nat. Dirs., W. A. Oliver, 402 Engrg. Hall, Urbana; C. T. Morrisett, 1509 W. Edwards St., Springfield.

Indiana

Pres., L. Eugene Easley, 6511 Evanston Ave., Indianapolis.
Exec. Sec., Sam Busby, Room 409 Chamber of Commerce Bldg., Indianapolis.
Nat. Dir., Chester Lichtenberg, 4624 Tacoma Ave., Fort Wayne.

Kansas

Pres., Charles V. Waddington, 201 N. Market St., Wichita 1.
Sec., James E. Myers, 1111 East Central, Wichita.
Nat. Dir., Walter G. Johnson, 1831 Medford Ave., Topeka.

Maryland

Pres., Arthur M. Gompf, 1019 N. Calvert St., Baltimore 2.
Exec. Sec., Stewart W. Parker, 511 Murdock Rd., Baltimore 12.
Nat. Dir., Owen W. Turpin, 1004 N. Charles St., Baltimore.

Massachusetts

Pres., Ralph D. Stauffer, 727 Mass. Ave., Cambridge.
Sec., Clarence R. Westaway, 285 Columbus Ave., Boston.
Nat. Dirs., Edgar A. Harty, 8 Cypress St., Marblehead; John J. Loustanau, 75 Pitts St., Boston.

Michigan

Pres., Arthur F. Plant, 227 Curtis Bldg., Detroit.
Exec. Sec., J. H. Nimmo, 100 Farnsworth Ave., Detroit.
Nat. Dirs., Otto H. Hall, 134 N. Hayford Ave., Lansing 12; Hugh E. Keeler, 231 W. Eng. Bldg., Ann Arbor.

Minnesota

Pres., Paul R. Speer, 2103 Lincoln Ave., St. Paul.
Exec. Sec., Richard R. Price, 1000 Guardian Bldg., St. Paul 1.
Nat. Dirs., M. C. Peterson, 5523 Morgan Ave., S. Minneapolis; T. S. Thompson, 1246 University Ave., St. Paul.

Missouri

Pres., Dean Wilson, State Highway Dept., Hannibal.
Exec. Sec., Clifford Wood, Box 365, Jefferson City.
Nat. Dir., Prof. Joe Butler, Missouri School of Mines, Rolla.

Nevada

Pres., Robert Millard, 909 Canyon St., Ely.
Sec., R. T. Campbell, Box 1015, Henderson.
Nat. Dir., J. H. Buehler, Bristol Silver Mines, Ploche.

New Jersey

Pres., Louis T. Klauder, 29 E. Central Ave., Moorestown.
Managing Dir.-Exec. Sec., Charles J. Dodge, 86 E. State St., Trenton 8.
Nat. Dirs., W. S. Dean, 38 Oakley Ave., Summit; E. H. Wickland, 302 Wildwood Ave., Pitman; Leo K. McKee, 16 McLaren St., Red Bank; Joseph J. Tomasulo, 116 Bridge St., Roselle Park.

New Mexico

Pres., Charles E. Barnhart, 2722 Hyder Drive, Albuquerque.
Sec.-Treas., Thomas T. Castonguay, P. O. Box 4053, Albuquerque.
Nat. Dir., E. B. Bail, 211 S. Dartmouth, Albuquerque.

New York

Pres., Robert A. Sovik, 122 Claire Road, Syracuse.
Exec. Sec., Robert C. Read, 1941 Grand Central Terminal Bldg., New York.
Nat. Dirs., Charles Molineaux, 12 Harper Ave., Toronto, Ontario, Canada; George J. Nicastro, 200 Madison Ave., New York.

North Carolina

Pres., Robert B. Price, Diesel School, N. C. State College, Raleigh.
Sec., John R. Gove, Box 1182, Chapel Hill.
Nat. Dir., John M. Fjeld, 301 N. Eugene St., Greensboro.

North Dakota

Pres., John A. Oakey, 1128 14th St., N., Fargo.
Sec.-Treas., Joseph Kirby, 827 13th St., Bismarck.
Nat. Dir., George Teskey, 714 Avenue E., Bismarck.

Ohio

Pres., Edward Larson, 830 Main St., Cincinnati.
Exec. Sec., Lloyd A. Chacey, 40 W. Gay St., Columbus.
Nat. Dir., Robert E. Allen, 141 W. Parkwood Dr., Dayton.

Oklahoma

Pres., Fred G. Fellows, 201½ E. Grand, Ponca City.
Exec. Sec., C. G. Worley, P. O. Box 987, Oklahoma City 1.
Nat. Dir., C. S. Worley, P. O. Box 987, Oklahoma City 1.

Pennsylvania

Pres., J. D. Carpenter, 600 N. Second St., Harrisburg.
Exec. Sec., John T. West, Jr., 228 N. Second St., Harrisburg.
Nat. Dirs., Robert A. Blackburn, Box 2, Ingomar; A. H. Kidder, 1 East Providence Rd., Lansdowne; Thomas A. Monk, 30 S. Queen St., York; H. F. Rickenbach, Boro Hall, West Reading.

Rhode Island

Pres., Vincent DiMase, 201 Dean St., Providence 3.
Sec., John W. King, 223 Ivy Street, Providence.
Nat. Dir., Robert B. Strong, 68 Oak St., Providence.

South Carolina

Pres., George W. Race, 8 South Church, Greenville.
Sec.-Treas., Dan F. Frick, 2920 Clarke St., Columbus.
Nat. Dir., R. K. Rouse, 228 N. Main St., Greenville.

Tennessee

Pres., R. P. Farrell, 420 Sixth Ave., North, Nashville.
Sec.-Treas., K. B. Stallings, 2609 Morris Ave., Nashville.
Nat. Dir., N. W. Dougherty, Univ. of Tennessee, Knoxville.

Texas

Pres., Marvin Nichols, 407 Clapps Bldg., Ft. Worth.
Exec. Sec., W. M. Driskell, 403 Nash Building, Austin.
Nat. Dir., Elgin B. Roberts, P. O. Box 745, Dallas.

Virginia

Pres., J. A. Rives, VPI, Dept. of Civil Engineering, Blacksburg.
Sec., Edward H. Ruehl, 400 Virginia Bldg., Richmond.
Nat. Dir., John B. McGaughy, 700 Front St., Norfolk.

Washington

Pres., Stephen M. Batori, 605 Arctic Bldg., Seattle 4.
Exec. Sec., Roy W. Johnson, 605 Arctic Bldg., Seattle 4.
Nat. Dir., Wallace W. Bergerson, Pollution Control Commission, Olympia.

West Virginia

Pres., Leslie C. Gates, Box 672, Beckley.
Exec. Sec., Ross B. Johnston, P. O. Box 249, Charleston.
Nat. Dir., Harry G. Kennedy, 1307 Kanawha Valley Bldg., Charleston.

Wisconsin

Pres., Edwin J. Kallevang, Wisconsin Power & Light Co., Madison.
Sec., W. G. Youngquist, 201 Kensington Dr., Madison.
Nat. Dirs., A. G. Behling, 2326 S. 75th St., Milwaukee; George Martin, Metro Sewerage Dept., P. O. Box 247, Green Bay.

ODM

(*Continued from page* 11)

HOWEVER, controls in themselves are not sufficient. They must be backed by the will and the cooperation of the people. It is not time alone that is lacking! There is a twilight mood among us today. If we had been attacked in New York instead of in Korea, there would be no question as to our national peril.

The major problem confronting us is that of public morale. We need to understand the objectives of mobilization and the threats that make controls necessary. We need to understand the necessity for additional taxes at a time when it appears that we may have a cash surplus for the fiscal year. We need to understand the necessity for price controls and the reason for diversion of scarce materials to military programs. We need to understand why workers are being asked to accept stabilized wages instead of continuing wage increases that would further increase the cost of living. We need to understand why farmers are being asked to accept something less than automatic current revisions of parity at a time when neither wage nor price controls are fully effective. We need to understand why businessmen are being asked to limit profits and to accept a multitude of regulations and controls. We need to understand the necessity for the adoption of fiscal and credit measures as well as direct controls. The mobilization program requires an equality of sacrifice from every element in the community—including labor, agriculture, and industry. Above all, it requires that the Government be strong enough to protect its citizens against the highly organized pressures which so easily make themselves heard and felt.

Nothing has occurred since last autumn to give us reassurances of peace. In summary terms, the world is divided into two groups. There are, on the one hand, those who believe in freedom and the dignity of man. On the other hand, there are those who believe in a supreme state to which all men would be slaves. Our own actions will determine our freedom and survival.

In closing, if I may paraphrase Mr. Churchill, whose words have marched across the hearts of free men everywhere, may I say that our course is quite clear. By singleness of purpose, by steadfastness of conduct, by tenacity and endurance such as we have displayed before---by these, and only by these, can we discharge our duty to the future of the world and to the destiny of man.

College to Industry

(*Continued from page* 29)

has his aim usually set upon a particular product, such as locomotives, aircraft, or power plant equipment, not realizing that for real happiness on the job, the product is only secondary. He must learn that the type of work being done is the really important factor. He will have to choose from a great number of different jobs, among which are: applications engineering, design engineering, development engineering, production engineering, research, sales, and service engineering. He will find these jobs available almost without regard to the particular product. Also, he will find that he can be happy at his work regardless of the product, if he likes the particular kind of work.

Upon leaving college, the young engineer finds himself in a very poor position to make a selection of the job that he is best fitted for and will enjoy the most because of his ignoance of what each of those jobs entails. Obviously, something should be done, but what? Should we blame the colleges for incomplete training?

You cannot very well pin the blame for the conditions upon the colleges because they must prepare their graduates for future jobs in any one of the above categories of engineering work in many different types of industry. There is neither the time nor the justification for preparing engineering graduates for any one of the thousands of jobs available.

Since the colleges cannot finish the preparation of the young engineers, there is only one solution for the problem remaining. The organizations hiring the engineers should provide a period of orientation, during which the men have a chance to look around and see for themselves just what each of the jobs is like. A large number of businesses are now carrying on programs for their young engineers for the purpose of orientation, one example of which is the Test Program of the General Electric Company.

When our young engineer settles down in a job, the next major problem that faces him is: how shall I apply what I learned in college to the job that I am working on at the present time?

In college, practically all of the problems handled had a known answer, were relatively simple in nature, and there was nothing, other than a grade, depending upon the quality or accuracy of the results.

However, on the job, the problems have no known answer, are seldom simple, and usually there is a great deal depending upon the outcome. For these reasons, there are psychological problems as well as physical problems to endure.

Here again, an orientation period, under the supervision of experienced engineers will prove to be invaluable in starting the young engineer off right.

The fact that a great number of large companies are carrying on orientation programs indicates that this procedure must have value.

Therefore, we may say in conclusion that a period of orientation given to young engineers will enable them to settle down in permanent jobs faster and more effectively.

What They're Saying

(*Continued from page* 30)

as contaminants in city water, milk, food and drugs are concerned. Why has there been so much of "ups and downs" in air-pollution-prevention work? It is true that emphasis goes down during a war and greatly increases following the end of a war, but this does not account for that characteristic. Only recently, during an after-war period, one New Jersey county dropped the work on short notice after some 20 continuous years of outstanding work on air-pollution-prevention that gained even international attention.

The basic reason for the lag in air-pollution-prevention is our indifference to or lack of fear of polluted air under all ordinary circumstances. The fact that we take in perhaps 3 to 5 times more pounds of air per day than food and perhaps 10 times more than water is given no thought. Even if automobiles continuously give out poisonous gases from incomplete combustion, we do not limit their use on city streets. People who would be horrified at the thought of giving their babies polluted milk or water are not particularly careful when it comes to polluting the air with tobacco smoke resulting from a combustion devised to be incomplete. When the medical profession instilled in the minds of the people the fear of impure water, milk and so forth, proper purification resulted. It is up to members of the medical profession to do their part toward better living by establishing needed facts about city air pollution that will impress themselves and then the general public.

J. F. BARKLEY, Chief,
Fuels Utilization Branch,
Bureau of Mines, Department of the Interior,
Washington, D. C. *Mechanical Engineering, April, 1951.*